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INVESTIGATIVE AND SCIENTIFIC PHASES OF THE DIABETIC QUESTION

THEIR PROBABLE RELATIONS TO PRACTICAL PROBLEMS OF CLINICAL MEDICINE *

FREDERICK M. ALLEN, M.D.

NEW YORK

A discussion of diabetes at the present time must consist in statements more of problems than of conclusions. The attempt will be to treat the subject in its living and changing present state, with full realization of the risk of mistakes. I am indebted to the kindness of several investigators for permission to mention important unpublished work. In view of the magnitude of the subject, it is obvious that various important phases must be omitted altogether.

There is a fundamental question, What is diabetes? The word belongs historically to clinicians, and can rightly be applied only to the clinical disorder or its experimental counterpart in animals. The names "diabetes" and "glycosuria" are those of disease and symptom. The distinction is not a mere nicety or purism of speech, but is an actual requirement for clearness of thought and action. The majority of erroneous hypotheses would have been avoided if the makers had had in mind a clear distinction between glycosuria, which is a glucose in the urine, and diabetes, which is a defect of metabolism. The polyglandular doctrine would never have arisen except for the confusion between diabetes and some nondiabetic forms of glycosuria, especially that caused by epinephrin. Even totally depancreatized animals may by various injuries or intoxications be made free from both glycosuria and hyperglycemia, but they are still diabetic. Clinically, there are occasional cases of renal and other glycosuria which it would be incorrect to treat as diabetes. But the great preponderance of diabetes justifies the rule that any case of clinical glycosuria should be considered diabetes unless it can be demonstrated to be something else.

To make the diagnosis of glycosuria merely because of the seeming harmlessness of the condition has proved to be a mistake. Slight glycosuria is nearly always mild diabetes. It yields to mild antidiabetic treatment; but if neglected it may become associated with familiar diabetic complications, such as gangrene or acidosis, or it may pass more or less suddenly into the severe form. Though glycosuria is the traditional chief symptom of diabetes, it seems a justified therapeutic rule at present that every diabetic should be kept completely and continuously free from glycosuria. That physicians and patients should intelligently cooperate to this end in the stage of mild glycosuria is the most important requirement for reducing the death rate from diabetes.

When we return to the question, What is diabetes? it is possible at the present time to phrase a reply, with increasing agreement on the part of investigators, that diabetes is deficiency of the internal secretion of the pancreas. The history of this doctrine goes back to the early English and French clinicians who observed changes, especially atrophy, of the pancreas in some cases of diabetes. Brunner had tried in 1686 to remove the pancreas, and almost exactly 200 years later, after Claude Bernard and others had failed, von Mering and Minkowski succeeded. There followed a period of enthusiasm and dispute. A series of investigators published statements that they had removed the entire pancreas and found diabetes absent or transitory. Minkowski and his followers were able to retort that these authors had left small shreds of pancreatic tissue, and that the uniform production of severe diabetes was obtainable only by complete removal of the pancreas. Minkowski saw a few instances of mild or irregular diabetes when very small fragments were left, and severe diabetes when such fragments underwent necrosis. Sandmeyer left larger fragments, with the duct and part of the blood supply ligated, and saw that after marked atrophy of the pancreas remnant, requiring as long as thirteen months in one case, chronic diabetes and emaciation resulted. This form may be compared with the unusual human cases resulting from pancreatic atrophy. An important matter at that time was the proof that diabetes is not due to lack of the external pancreatic secretion; therefore pancreas remnants were left isolated from duct communication with the bowel.

The enthusiasm aroused by von Mering and Minkowski's discovery, the resulting belief in the pancreatic origin of diabetes, and the hopes for a new therapeutic era gradually died down in the face of baffling discouragements. These were essentially, first, the complete disappointment from pancreatic organotherapy, second, the repeated failures to find pancreatic lesions in diabetic necropsies, and third, the differences that were more and more insisted on between human diabetes and the form following total pancreatectomy in dogs. The result was a period when few persons were willing to affirm that diabetes is regularly and fundamentally a pancreatic disorder. Back in 1892, de Renzi and Reale reported a permanent and fatal diabetes in a dog, when a considerable

* From the Hospital of the Rockefeller Institute for Medical Research.

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fragment of pancreas had been left in its normal position and did not atrophy. The same authors made other claims which were erroneous, and neither they nor Pflüger gained sufficient insight into the matter to reproduce this form of diabetes. After many years, an idea suggested itself that the most promising way to study weakness of the pancreatic function is not found in the abrupt removal of the whole organ or in the atrophy of an isolated remnant. A more accurate and logical attempt to reproduce human diabetes will consist in removing portions of pancreatic tissue, leaving the remainder with its normal blood supply and its normal relation to the intestine. Accordingly, the above-mentioned form of diabetes was rediscovered in four different places at about the same time, the investigators all being ignorant of one another's work and of that of de Renzi and Reale.

The first in point of publication were Thiroloix and Jacob, who made two important observations: first, that when a sufficient portion of a dog's pancreas is removed, leaving the remainder in its normal connections with duct and blood vessels, this remnant retains normal appearance and supplies enough pancreatic juice to maintain the animal's nutrition, yet diabetes develops and runs a gradual downward course much like the human disease; second, in suitably prepared animals, this downward progress can be produced or hastened by overfeeding with carbohydrate. These authors made several mistakes, among them the statement that the islands of Langerhans are unchanged; but a 1913 announcement by Thiroloix and More indicates that they have seen the changes and propose to study them, being still ignorant, like most Europeans, that this has already been done in America.

The second in point of publication was Helly, who studied only the glycogen, finding that in this form of diabetes the animals retain more or less glycogen, here resembling human diabetics.

The third to be published was my own work, which dealt with various points concerning this type of diabetes, compared it with the normal and with other forms of diabetes and of glycosuria, and also, thanks to the cooperation of Prof. F. B. Mallory, described for the first time the specific changes in the islands of Langerhans in experimental diabetes — inasmuch as one previous statement by Minkowski concerned an isolated and accidental observation, and from his phrase "shrunken and altered islet cells" it is not possible to say definitely whether he saw the late stages of hydropic degeneration or other changes that may occur in a subcutaneous pancreatic graft.

The fourth in point of publication was Homans, who discovered this form of diabetes in cats and made the most accurate histologic studies, as will be mentioned later.

EXPERIMENTAL IMITATION OF HUMAN DIABETES

Now the question is proper, In what respects can human diabetes be imitated by this method in experimental animals?

1. The onset may be similar. When nine tenths or more of the pancreas is removed, the onset may be acute. When seven eighths or sometimes less of the pancreas is removed, the onset may be gradual, with longer or shorter periods of slight or intermittent glycosuria.

2. The effect of carbohydrate food is similar. When the work of Thiroloix and Jacob is repeated with adequate controls, it can be proved that dogs after suitable operations can be kept for months and apparently for years in the best of health on a diet within their tolerance; but a diet in excess of the tolerance gives rise to a permanent and fatal diabetes. Sugar can produce diabetes in some animals which, at least for a considerable time, can live on starch safely.

3. Individual idiosyncrasies are somewhat similar, as mentioned in Homans' recent paper. It is curious that some human patients go downhill so readily and lose tolerance so rapidly under improper diet, while others can keep up glycosuria for months and perhaps years with surprisingly little damage to either health or tolerance. Conditions in animals are more uniform and controllable; but yet, after apparently the same sort of operation, animals show variable hypertrophy of the pancreas remnant; and, aside from this, some animals will endure weeks or months of diet beyond their tolerance before they pass into hopeless diabetes, whereas other animals within a few days develop an intensity of diabetes which nothing can check.

4. The diminished permeability of the kidney for sugar is similar. When glycosuria is stopped, the blood sugar may remain above normal for indefinite periods, just as in human patients. Also, animals which have been kept free from glycosuria may show the blood sugar increasing steadily through weeks and months, with the renal impermeability apparently keeping pace, before glycosuria finally begins, so that the simple excess of sugar in the blood seems sufficient to produce sugar impermeability.

5. Nervous influences may be similar. Physicians have sometimes said, "This case is not diabetes; it is merely nervous glycosuria." A partially depancreatized dog may be subject to such nervous glycosuria, so that merely a trip to the operating room gives rise to a little sugar in the urine. This is true especially in small, nervous dogs; it has not been noticed in big, phlegmatic dogs. I have not yet seen an instance of permanent diabetes of psychic origin in any animal. This might be possible, but there is difficulty in producing in animals any such prolonged and intense nerve strain as human beings sometimes endure.

6. Traumatic diabetes occurs in occasional predisposed animals, just as in predisposed human subjects. Two dogs showed beginning or aggravation of diabetes after brief anesthesia for simple subcutaneous operations. One of these could not be made sugar-free by fasting, the condition being thus analogous to a human case recently described by Joslin. A partially depancreatized cat, injured in an accidental encounter with a dog, showed no glycosuria at the time; but as the appetite gradually returned, severe diabetes suddenly began, two weeks after the accident, and continued until checked by fasting. The many months of observation on fixed diet, before and after the accident, make it probable that this was a case of delayed onset of diabetes after traumation, exactly as recorded in various human patients. As traumatic diabetes is unusual among patients, so also these three are the only ones seen among hundreds of animal observations.

7. Diabetes decipiens is an old name for glycosuria without polyuria. It means deceiving or deceptive diabetes, and originated from the fact that early clinicians sometimes failed to diagnose diabetes when there was no polyuria. Probably such a condition means always one of two things, either an organic or functional abnormality of the kidney with diabetes, or a mild type of diabetes. Severely diabetic animals show the diu-

retic effect of carbohydrate like typical human diabetics, but it is also possible to have animals temporarily at a stage at which doses of sugar or starch produce marked hyperglycemia and glycosuria without much change in diuresis, or with an actual diminution of urine, thus indicating that the mere percentage of sugar in blood or urine is not the decisive factor.

8. These animals do not show such cachexia and impaired wound healing as totally depancreatized animals, but they go through operations successfully, as human diabetics usually do under suitable conditions. Severe diabetes in animals runs its course in a few months, and this fact may in some degree explain the relative absence of complications. In the later cachectic stages, there is increased tendency to sore eyes, distemper, skin troubles, cystitis, and what in human patients might be called a form of gangrene; that is, insignificant injury or pressure results in superficial infections and ulcers; these slowly extend instead of healing. There has never been any evidence for the belief that diabetic complications are due to high blood sugar. Against this belief is the fact that normal animals receiving sugar injections for long periods show no such complications, and this type of diabetic animals may have very high blood sugar for much longer periods than totally depancreatized animals, yet their wounds heal better. Diabetes is a specific disorder of nutrition, and it diminishes the ability of all the body cells to resist infection, repair injury, or withstand the ordinary wear and tear. Such a conception gives a rational explanation of the increased susceptibility of the human diabetic to cataract, retinitis, neuritis, arteriosclerosis, pyogenic infections and tuberculosis, and the improvement of these conditions when proper therapy improves cellular nutrition; while the diabetic dog shows increased tendency not so much to these identical complications as to the corresponding canine afflictions.

DIFFERENCES BETWEEN CLINICAL AND EXPERIMENTAL DIABETES

We now come to the chief points of alleged difference between clinical and experimental diabetes. First is the dextrose-nitrogen ratio, which is Lusk's figure of 3.65 in the severest human diabetes, whereas removal of the dog's entire pancreas gives only the Minkowski ratio of 2.8. Eppinger, Falta and Rudinger reported that they obtained ratios above 2.8 by giving epinephrin to a depancreatized dog, or by removal of three parathyroids in addition to the pancreas; but such a statement, in the sense of anything more than a temporary flushing out of preformed carbohydrate, is open to serious question and cannot be accepted unless confirmed. Phloridzin gives a 3.65 ratio in man and the dog, but only a 2.8 ratio in the cat, rabbit and goat. Here the cause of glycosuria, phloridzin, is the same, but the ratio is different because of the difference in species. Total removal of the human pancreas should theoretically give a ratio of 3.65; but it is not permissible to say that human diabetes is not pancreatic because pancreatectomy gives only a 2.8 ratio in the dog. This is one of the reasons why I am engaged in producing diabetes in various species of animals, and it will not be surprising if one or more species may be found in which pancreatectomy gives a 3.65 ratio.

The second point of difficulty has been the great increase of total metabolism in the totally depancreatized dog. The answer here is twofold. First, although the partially depancreatized animals have unfortunately never yet been studied in the respiration calorimeter, the available observations concerning the food and urine indicate that these animals will be found to resemble human diabetics rather than totally depancreatized animals. Second, although the increase of metabolism in severe human diabetes reported by Benedict and Joslin was disputed by other authorities, now, on the basis of some recent observations already discussed by Geyelin and Lusk in a meeting at the Academy of Medicine in New York, it is agreed that some cases of human diabetes may show a well-marked increase of metabolism in comparison with nondiabetics under similar conditions. A striking example is the patient of Geyelin and Du Bois, who after five days of fasting still had a daily nitrogen excretion in the neighborhood of 30 gm. and a total metabolism at least 3 per cent. above normal. There may still be discussions concerning the frequency or the cause of such increased metabolism, but the existence of such human cases and the similarity to diabetic animals is established.

The third point is the difficult one of anatomic changes in the diabetic pancreas. Using tissues stained by the ordinary methods in Mallory's laboratory, I observed that the cells of the islands of Langerhans in dogs with early diabetes begin to show vacuolation; and as the diabetes progresses, this vacuolation increases, the nuclei become pyknotic, and cells and islands finally disappear. Further work has confirmed the impression that the changes are strictly specific to diabetes, they are not due to operative trauma or other extraneous causes, and they can be produced at will by feeding predisposed animals in excess of their tolerance, the clinical and anatomic changes running parallel.

Weichselbaum had described changes of this sort in the diabetic human pancreas, under the name of hydropic degeneration, and he asserted that he had found this or other lesions of the islands in all of his 186 diabetic necropsies. Other investigators — the latest being Major — have not been convinced of the existence of any specific alterations in the diabetic human pancreas. No pathologist has ventured to claim that he could go through the necropsy material of a hospital and pick out the diabetic from the nondiabetic cases, and unless a test of this sort can succeed in at least a fair proportion of cases, we have no microscopic diagnosis of diabetes.

One statement can be made positively: The typical diabetic human pancreas does not show the striking and generalized alterations of the islands present in experimental animals, for if it did, no conscientious pathologist could miss them. It is not justifiable to fall back on difference of species as the whole explanation. With minor variations, the diabetic degeneration of the islands has been found similar in several species of diabetic animals, including the monkey. I was privileged to see material obtained by Dr. Alonzo Taylor from a case of diabetes following pancreatic operation in a human patient; the lack of perfect fixation, unavoidable because of the circumstances of the necropsy, may make judgment difficult. Ghon and Roman described a case of youthful diabetes with very small pancreas due to developmental defect, and the changes in the islands of Langerhans were obviously identical with those in partially depancreatized animals.

The classical work in the microscopic study of experimental diabetes is that of Homans. Lane and Bensley had demonstrated that the cells of normal islands are of two distinct types, a less numerous alpha type and a more numerous beta type, distinguishable by the differential staining of their granules. Whereas ordinary stains, as mentioned above, make it appear that the entire islands degenerate in experimental animals, Homans proved by the special granule stains that only the more numerous beta cells show the exhaustion and degeneration, while the less numerous alpha cells remain intact. The easiest supposition is that the specific secretion of the beta cells is concerned in carbohydrate metabolism. The function of the alpha cells is entirely unknown. In a dog with spontaneous diabetes studied by Dr. Krumbhaar, the pancreas was about twice as large as normal, and degeneration was seemingly present in both beta and alpha cells. Homans points out that in cats the changes in all the beta cells are practically simultaneous, whereas in dogs with early diabetes occasional cells show exhaustion while the majority still appear normal. Homans has described a similar occurrence in human diabetes, namely, that although much of the island tissue may appear normal, yet some beta cells in some islands show typical hydropic degeneration. It would seem that the most promising prospect for the microscopic investigation of diabetes lies in this direction, where Homans has led.

The functional element in human diabetes must also be considered, and is emphasized by the results of treatment. When the beta cells of a dog are all degenerated, nothing can stop the diabetes. But human cases of the severest type can be checked in a few days, and within a few days more some of them show a rather surprising carbohydrate tolerance. By permission it is also possible to mention a patient of Dr. Eugene Du Bois whose urine easily became sugar-free; then, on overfeeding with carbohydrate-free diet, there was an abrupt development of total diabetes as demonstrated by the D/N ratio and the respiratory quotient, and then a quick clearing up of the glycosuria on fasting — all within a very few days. These phenomena are suggestive of functional rather than anatomic alterations.

Opie founded the insular hypothesis of diabetes on clinical-pathologic observations, and the experimental evidence for it is good, inasmuch as Macallum, Laguesse and others proved the absence of diabetes when apparently nothing is left of the pancreas except island tissue, and the recent experiments show the presence of diabetes when apparently nothing is lost except the beta cells of the islands. It is not strange if there are some discrepancies between a spontaneous disease and the consequences of surgical reduction of an organ. We properly speak of human diabetes as pancreatic, because of evidence that deficiency of the internal pancreatic function is the central feature. But the cause back of the deficient function may be a disorder of the abdominal nerves, and this cause may to greater or less degree disturb the function of other organs than the pancreas. Large wet kidneys, and sometimes a hyperemic liver, are traditional in diabetes, with no definite pathologic changes in either organ. The recent treatment has brought into prominence the fact that although the kidneys are microscopically normal, abnormal renal function is the rule rather than the exception in severe diabetes. This is evidenced especially by the marked tendency to edema, which is shown to be associated with salt retention. Urea excretion is generally above normal (McLean). Decision concerning the incidence and significance of organic changes in the pancreas obviously requires further study by the best staining methods, and there is a real dearth of suitable necropsy material. Pancreatic specimens should be taken fresh, within an hour of death if possible, and should be cut almost as small as curettings, that is, a very few millimeters in dimensions, to permit quick penetration of the fixative. A simple fixative for the purpose is Zenker fluid without acetic, or with only 1 per cent. acetic acid. Physicians who can obtain such material would render a service by sending it to some one interested in the study.

The fourth and last of the differences to be considered between clinical and experimental diabetes is ketonuria or acidosis. It is an old statement that the diabetic patient dies in coma and the diabetic animal dies in cachexia. Totally depancreatized dogs may show ketonuria, generally slight, and a few authors have reported the death of some such animals in a comalike state. But the cachexia is so pronounced that clinical judgment may be difficult, and Sass found no reduction in the alkalinity of the blood of depancreatized dogs. Fasting phloridzinized dogs show more or less ketonuria, and comalike conditions have been described, but there is possible confusion due to cachexia or phloridzin intoxication, and, although blood tests are in progress, it is too early to report as yet concerning the possibilities of acidosis. It is fully understood that dogs have much less tendency to ketonuria than man, and that is one of the reasons for the present attempts to produce diabetes in species that are more like the human being in this respect. But there are two answers to the traditional argument, even when dogs serve for the comparison. First, totally depancreatized dogs and even Sandmeyer dogs have poor fat-absorbing power, whereas human diabetics have been stuffed with fat; and when the customary overfeeding of human diabetics is stopped, death in coma will be less frequent. Second, under suitable conditions, even dogs seem susceptible to coma. I have seen three dogs with fatal intoxication, and either in dogs or other species, there is some hope for an adequate imitation of human diabetes in this respect.

DIABETIC ACIDOSIS

Here it may be well to introduce a few remarks touching the present status of the subject of the so-called diabetic acidosis. Until recently the doctrine seemed comfortably established that ketonuria is the result of lack of carbohydrate, though von Noorden insisted on the influence of individual idiosyncrasy and habituation, and Magnus-Levy admitted that some unknown factor might sometimes play an accessory rôle. It was also universally believed that the one therapeutic measure of preeminently proved necessity in diabetes was the neutralization of acid intoxication by large doses of alkali. The occasional fast-days or vegetable days recommended by Bouchardat, Cantani and Naunyn were known to diminish acidosis, but there exists sufficient evidence that prolonged fasting was generally considered inadvisable or even dangerous in severe diabetes. Guelpa's practice of fasting is not an exception, for his cases were not severe. Almost two years ago, on the basis especially of the observed benefit of fasting in diabetic dogs, I tried prolonged

fasting in severe human diabetes, and found that not only did the glycosuria cease, but also there was practically complete cessation of acidosis, as judged by the clinical symptoms, ketonuria, ammonia excretion, and the dosage of bicarbonate needed to make the urine alkaline. Since that time the study of the acidosis has been more extensively and accurately carried out by Drs. Van Slyke, Cullen and Stillman, who have used alveolar air and hydrogen ion concentration methods, but especially the new Van Slyke method for determining the carbon dioxid capacity or sodium bicarbonate concentration of the blood. It is desired here only to mention briefly some results of the fasting treatment and their bearing on current theories of acidosis.

First, consider the theory of acidosis due to lack of carbohydrate. Fasting produces a slight ketonuria in normal persons. When it is followed by carbohydrate-free diet, a marked acidosis with typical clinical symptoms may result, as shown especially by Landergren and Forssner. But when the typical severe diabetic fasts, symptoms of coma promptly clear up, the ketone and ammonia excretion fall precipitously, the carbon dioxid of the alveolar air and blood rises to an approximately normal level, and these things then remain so on strictest carbohydrate-free diet, sometimes even if the diet is heavy with fat; the ferric chlorid reaction remains negative, and there are only traces of acetone, a slightly high ammonia, and a slightly low blood alkalinity.

Then, there is von Noorden's theory of habituation; the severe diabetic becomes accustomed to living without carbohydrate, and therefore he develops the power of disposing of such a diet without ketonuria. But a patient recently treated by Dr. Stillman was a child aged 26 months, who had had diabetes only three weeks and had constantly had carbohydrate in the diet, and when placed suddenly on complete fasting the child's acidosis cleared up promptly and completely. On the other hand, patients who have had moderate diabetes and have lived on carbohydrate-free diet for months or years may show an actual increase of acidosis when they fast.

Then there is the other von Noorden theory of individual idiosyncrasy as respects the function of burning acetone bodies; some diabetics have a specific weakness of this function, so that they cannot be made free from acidosis and are in imminent danger of coma. It will be noticed that the present therapy turns the former question directly around; these patients with the highest acidosis are the very ones who most often clear up completely under the conditions in which normal persons or milder diabetics develop acidosis; and concerning the very patients who were previously suspected of an abnormally low power of burning acetone bodies, we must now ask, Have they an abnormally high power of burning acetone bodies?

The glycogen supply has been held important; Forssner, for example, believed that by fasting and exercise to diminish the glycogen, he disposed normal persons to increased acidosis. Also, diabetics with acidosis have been known to go into coma after overexertion. But the normal person and the mild diabetic who develop acidosis on fasting are certainly richer in glycogen than the severe diabetic, whose acidosis clears up on fasting. Moreover, the analyses in the literature indicate that patients who die in coma may possess considerable glycogen. Von Noorden gives the record of two patients who received levulose and had 2.5 per cent. liver-glycogen at necropsy, yet they died in coma. Though exercise should be used judiciously, and should not be commenced until a threatening acidosis has been reduced, yet, after this time, many severe diabetics are benefited by vigorous exercise during fasting or on carbohydrate-free diet thereafter; the result is not ketonuria or coma.

The burning of sugar has been deemed all-important, and it might be considered that diabetic acidosis clears up on fasting because the glycosuria stops and the patient now burns his own protein sugar, whereas previously he was losing more or less protein sugar. But in the above-mentioned severe case of Geyelin and Du Bois, the acidosis dropped enormously on fasting even while the dextrose-nitrogen ratio was still 3.65 : 1. Benedict and Osterberg found that the ketonuria of phloridzinized dogs fell from 50 to 90 per cent. when they were fed protein, though all protein sugar was quantitatively excreted. Carbohydrate, frequently in the form of bread and milk, has been widely used in attempts to ward off coma. A 26-months-old diabetic baby was mentioned previously. By mistake, toward the close of his fasting period, this child received a meal of bread and milk. The exact quantity is not known; but the child never had total diabetes, and the urine had become almost sugar-free, so it is fair to assume that some carbohydrate was burned. But the result was a sudden heavy glycosuria and ketonuria, an abrupt fall in the blood carbon dioxid, and a return of threatening acidosis symptoms; and all these cleared up on continuance of fasting.

When the severe diabetic fasts, there is generally a marked fall in metabolism, and this might be assumed as a basis for a diminished production of acetone bodies. But in the Geyelin-Du Bois case the acidosis dropped while the metabolism was still high. Children are supposed to be specially subject to acidosis, but children with severe diabetes clear up on fasting without difficulty. The acetone bodies are derived chiefly from fat, and Folin and Denis are the latest to describe the tendency of fat persons to acidosis while fasting, so it might be thought that the severe diabetic loses his acidosis readily because he is so emaciated; having so little fat to burn, he must burn something else instead. But the baby mentioned above was as plump and chubby as could be wished, and the acidosis cleared up. On the other hand, a man with only slight acidosis but most extreme emaciation failed to become free from acidosis on fasting, and his ketonuria stubbornly resisted the subsequent treatment for a considerable time. Also, Dr. Geyelin has made the observation that one or two of his patients with moderate diabetes showed slight persistent ketonuria as long as they were undernourished, but when the calories were brought up to the requirement by merely increasing the carbohydrate-free diet, the ketonuria ceased.

The state of intoxication here discussed is familiar to everybody and has become an old story in diabetes; but what is this condition, and what name can properly be applied to it? The name "acidosis" sounds most scientific at the present time. The school of Naunyn and Magnus-Levy has insisted on the diminished alkalinity of the body fluids as the essential feature, and on this basis recent work has brought the dyspnea and coma of diabetic acidosis into relation with the similar symptoms in uremia and other intoxications, including some disorders of childhood. It is true that these diabetics when left to themselves regularly show an excretion of abnormal acids in the urine, and a diminished alkalinity of the blood. But the one outstanding

historical feature is the failure of the alkali therapy for coma. The excuse about not being able to give enough alkali to neutralize the enormous quantities of acid present is open to some question. If one does succeed in giving enough bicarbonate to turn the urine alkaline, a diabetic on the verge of coma may not show the same perfect clearing of symptoms as an acid-poisoned rabbit. Take a patient who is just going to sleep, of the type which, as past experience has shown, in a majority of cases cannot be saved by alkali, and give him no alkali, merely let him alone without food; in twenty-four hours he may be out of danger. That does not look like such enormous quantities of acid accumulated in the fluids and cells. Von Noorden and a few others have insisted that some diabetics die in coma when the urine has been kept constantly alkaline for a considerable period and up to the end. I have personal knowledge of two patients who died when the alkalinity of the blood had been kept normal or above normal by means of bicarbonate. Dr. Joslin in Boston seldom if ever uses bicarbonate now. Sodium bicarbonate promotes diuresis under favorable conditions, and the intravenous infusions raise blood pressure. But there is the old instance in which Hilton-Fagge obtained a similar brief reviving effect by the use of an acid solution intravenously. Last month Poulton published a brief report, and by comparison of his figures with those of Barcroft, he draws the conclusion that, according to the curve of hemoglobin dissociation, a normal person after moderate exercise has a more acid blood than a diabetic in coma. The carbon dioxid findings appear not to agree with this.

Other possible names for the intoxication are ketogenesis, ketonuria and ketonemia. Against ketogenesis it may be objected that more or less production of one or more acetone bodies is a regular process of normal metabolism. Ketonuria lays stress on the increased concentration of acetone bodies in the urine, rather than in the blood and tissues, whereas the latter is the more important factor, and is supposed to be especially dangerous in some cases of retention with very little ketonuria. Ketonemia correctly designates the circulating excess of acetone bodies, but, if used to cover the entire condition, it implies that specific poisoning with acetone bodies is the essential feature. Ehrmann and collaborators supported this view by producing an alleged imitation of diabetic coma in young dogs by feeding or injection of the alkali salts of butyric or diacetic acid.

According to this view the body burns and excretes all the acetone substances it can, and the excretion is facilitated by alkali; but owing to the excess present, these defenses are inadequate and the body is poisoned, even though the substances are present not as free acids but as neutral salts. But in Ehrmann's experiments, ketonuria was slight; and it remains unexplained why the normal organism overwhelmed with the alkali salts of keto-acids fails to excrete them in the large quantities characteristic of the intoxicated diabetic patient.

The toxicity of acetone bodies is relatively slight, so that large quantities of them must be present for fatal poisoning. In diabetic necropsies Sassa has lately found values somewhat lower than those reported by Magnus-Levy. When patients with only slight ketonuria go into coma, the assumption has been that the acetone bodies were retained. Weiland claims to have found at necropsy no great increase of beta-oxybutyric acid in the organs of such patients; but he does not give figures. Marriott's tables show a severe diabetic not in coma with 65 mg. of total acetone bodies per hundred gm. of blood, whereas a child in coma had only 48 mg. per hundred gm. of blood. Clinicians consider a sudden high ketonuria especially dangerous, and in the Landergren-Forssner experiments the acute ketonuria was associated with decided symptoms of intoxication. Yet Benedict and Lewis produced by phloridzin in human subjects a dextrose-nitrogen ratio of 3.6, and a sudden heavy ketonuria with ammonia excretion above 4 gm. daily, and symptoms such as seen in diabetic patients were absent.

The name "diabetic coma" might appear safe and conservative; but the condition is not always diabetic, and there is a question whether it is always coma. Forssner was not a diabetic, yet he showed the typical intoxication, and might well have gone into coma if the experiment had been prolonged. Coma is merely an end-state, and there must be a name for the less severe degrees of the intoxication. The intoxication observed by Folin and Denis in fasting obese women has been mentioned. The subjects need not be obese. Bönniger and Mohr observed ketonuria of over 24 gm. in a fasting woman; Gerhardt and Schlesinger 40 gm. daily in hysterical vomiting; von Noorden 48 gm. on the third day of fasting of a girl with gastric ulcer. None of the persons who showed symptoms were deprived of carbohydrate in anything resembling the exquisite manner of Benedict and Lewis' phloridzinized subjects, who were free from such symptoms. Howland and Marriott have lately reported ketonuria, acidosis and intoxication symptoms seemingly not explained by carbohydrate deficiency, and in at least one patient on full mixed diet. Clinicians are aware that occasional diabetic patients die not in coma, but in what has been called diabetic collapse or heart failure. It is not known whether this is an expression of the same intoxication that causes coma.

Also, consider again the phenomena of fasting. Two patients excrete sugar on carbohydrate-free diet. One has little ketonuria or acidosis; the other has much. Apparently, one of them can resist ketonuria or acidosis better, or has less tendency to it, than the other. Then they fast, and the one who seemed to have poor resistance becomes free from ketonuria and acidosis. The one who seemed to have good resistance does not become free. The ammonia in the latter's urine may or may not increase; the carbon dioxid of alveolar air and blood falls perhaps dangerously low, and there are intoxication symptoms. From 5 to 20 gm. of sodium bicarbonate may raise the carbon dioxid and clear the clinical symptoms. The questions arise: Why are there such marked signs of acidosis chemically and clinically, when such a small dosage of alkali suffices to remove them? Why does this patient, who appeared to resist acidosis so well, not form the small amount of ammonia required to neutralize his acids?

Then there are the rare patients who develop alarming symptoms on fasting. The cases may at first seem severe or only moderate. The glycosuria may clear up or remain heavy. But the acetone bodies and ammonia are high and the carbon dioxid low. Symptoms commonly associated with acidosis appear—weakness, malaise, nausea, vomiting. Maximum doses of bicarbonate may raise the alkalinity of the blood to normal, but do not save the patient. Consciousness may be retained practically to the end. In an ordinary

patient verging on coma, carbohydrate-free diet is a fairly sure means of producing coma. But in the type of patient here described, carbohydrate-free diet, given in time, may clear up the acidosis symptoms, and some days later a second fast is well borne and there is no further difficulty. The patient of Geyelin and Du Bois is the best therapeutic example of this kind of case to date. After five days of fasting, sugar, nitrogen, acetone bodies, and ammonia were high; intravenous bicarbonate infusions raised the carbon dioxid capacity of the blood to 30, but dyspnea and drowsiness gave unmistakable warnings. The patient was accordingly fed. His urine was as unfavorable as before; his carbon dioxid under smaller doses of alkali fell as low as 19, yet his clinical condition was transformed. A second fast cleared up everything successfully. A striking feature is found in the classical symptoms of acidosis present when the carbon dioxid reading was 30, and the marked clinical improvement in these symptoms when the reading had fallen to 19.

Further paradoxes and contradictions could be mentioned if space permitted. It is a sufficient summary to say that some empiric observations exist, but, fundamentally, nobody knows anything about acidosis. We are not even sure of a correct name for the diabetic intoxication. Yet methods are now available—methods for carbon dioxid and hydrogen ion concentration, and micro methods for acetone bodies. It is safe to say that diabetic intoxication and coma will now be studied more carefully and accurately, and within a few years our understanding will have advanced beyond the chaos here depicted. The condition may turn out to be a true acidosis, or a specific intoxication with acetone bodies, or varying combinations of the two elements; or it may be a poisoning with unsuspected intermediary products of fat metabolism. Even clinical observation should be sharpened. It is now probable that typical Kussmaul dyspnea or big breathing is characteristic of acidosis; yet Weiland mentions deep breathing with alkaline urine, and observations in various states of acidosis should easily show the facts. It is probable that patients do not show typical coma without acidosis, though they die with an obvious intoxication.

A further metabolic problem has been raised, since, in the severe diabetics who clear up on fasting, Benedict and Joslin and Du Bois have found some higher respiratory quotients than seem explainable by combustion of the materials supposedly available. Strangely enough, there exists no satisfactory information concerning the amount of sugar present in the tissues under various conditions, but animal experiments now conducted by Dr. Palmer will throw some light on this subject. Joslin has suggested that the high quotients may represent combustion of acetone bodies. The lesson of clinical experience seems to be that, irrespective of individual idiosyncrasy, patients who have once experienced intense acidosis develop a peculiar power of disposing of these acid metabolic products. Perhaps it is a specific increased power of burning acetone bodies or avoiding their excessive formation; perhaps it is the same power of doing without carbohydrate, possessed by carnivorous animals. Again, as alkalies are known to increase the loss of acetone bodies, supposedly by facilitating their excretion, the simple explanation may be that the patient who has had high ketonuria has thereby developed a diminished renal permeability to acetone bodies, strictly comparable to the diminished permeability of the diabetic kidney for sugar, and that this raised threshold dams back the acetone bodies from the urine to greater extent than normal, so that they circulate in higher concentration, are more dangerous when there is great excess, but also under favorable conditions are burned in higher degree, according to the law that seems to govern all combustible substances. Dr. Fitz is at work on this and related problems. Altogether, the indications are that the treatment by fasting will result in throwing considerable new light on the theoretical conceptions of diabetic intoxication and acidosis.

In the practical therapy of acidosis, it is still a wise general rule to use alkali and other customary measures at the outset, as recommended in the first paper concerning the fasting treatment,[1] though under proper conditions and with adequate tests of the acidosis, nearly all cases can be managed without alkali. If alkali is used, the dosage can be smaller than formerly employed for threatened coma, and the injurious or dangerous effects of the large doses may thus be avoided. For the average patient, a proper fasting and dietary régime quickly obviates the need for alkali. For the occasional patient who reacts badly to fasting, the practice in this hospital is not to resort to excessive doses of bicarbonate, but to terminate the fast by giving restricted diet. After a week or two of such diet, a second fast has regularly proved successful. In no case is alkali given for more than a very short period, and the ideal in all cases is to prevent the formation of the acid substances rather than to attempt to neutralize or eliminate them by means of sodium bicarbonate.

TREATMENT

Leaving this digression concerning acidosis, let us return to our original question, What is diabetes? If it springs from deficiency of the internal secretion of the pancreas, what are the results or manifestations of this deficiency? The most obvious fault is in the sugar metabolism; here the distinctive feature of diabetes is not glucose in the urine, but diminished power to use glucose. But diabetes is probably something broader than this. The normal person eats food, digests it, and absorbs it into his blood, and his cells assimilate it for their nutrition. The diabetic eats, digests and absorbs normally, but does not assimilate normally. Diabetes may probably be defined as a specific deficiency of the power of assimilating food.

The question may be pushed further; what is the mechanism of this power, the reason for this deficiency? Concerning this, I have previously proposed a tentative hypothesis of "binding substances." The hypothesis is merely suggestive. It is entirely without chemical support. But since chemical methods have not yet been able to grasp the problem of the mechanism of diabetes, the negative chemical evidence is not decisive. In addition to the previous observations concerning the diuretic action of sugar, the following may possibly have some connection with this idea of the ability of cells to bind food substances. First, the accumulation of reserves, as when the body gains weight, diminishes tolerance and aggravates diabetes; whereas the reducing of the reserve stores, by low diet or by exercise, increases tolerance and checks diabetes. Second, any kind of food—except apparently alcohol, which has no storage form—

1. Allen, F. M.: Studies Concerning Diabetes, THE JOURNAL A. M. A., Sept. 12, 1914, p. 939.

weakens the assimilative power for other foods. Adding carbohydrate to a diabetic diet may give rise to ketonuria. Adding fat to a diabetic diet may give rise to glycosuria. This fact was partially obscured when it was the practice to give severe diabetics carbohydrate for the sake of relieving acidosis. Certainly an excess of carbohydrate, by forcing combustion of carbohydrate and also diminishing combustion of fat, may temporarily diminish ketonuria; but the injury to the patient's actual functional capacity is still evident. After a sufficient period of carbohydrate excess, there is greater ketonuria than before on the same diet as before; and, as shown above, it is difficult to maintain that ketonuria is due merely to lack of carbohydrate. The true conditions are more clearly observable under the fasting treatment.

The history of diabetic therapy, so far as it is significant or valuable, consists merely in an interweaving or alternation of two principles. One is restriction of the sugar-yielding elements of the diet, namely, carbohydrate and protein. The other is diminution of the total caloric value of the diet. The latter is the older. Willis reported benefit from a diet limited to milk and barley-water cooked with bread. There have been milk and vegetable cures since then; but whereas the authors aimed at a nontoxic diet, what they really achieved was undernutrition. Then came Rollo with his notion of animal food to strengthen digestion, and thus the benefit of carbohydrate restriction was accidentally discovered. The harmfulness of excessive protein-fat diet was soon recognized, and Bouchardat, Cantani and Naunyn introduced fast-days and lower diet. Then came the ritual of von Noorden's oat cure, and the widespread ideas concerning special properties in oatmeal, which ought not to have gained credence among those acquainted with the literature of previous carbohydrate and vegetable diets. Blum broke the spell by having the courage to declare that oatmeal is like any other form of starch; and then straightway others made the test, and it became established that there is no special virtue of any kind in oatmeal. The oat cure gave patients a few days' rest from protein-fat excess by substituting carbohydrate excess. Its advocates claimed that it avoided the undernutrition characteristic of other carbohydrate cures, by making up a diet adequate in protein and calories on the oat days; but the undernutrition was present in the fast-days or vegetable days preceding and following the "cure," and therein lay the principal benefit. The oat cure merely shows that a large proportion of diabetics still manifest a surprisingly high carbohydrate tolerance when conditions are not too unfavorable. It is a failure in genuinely severe cases.

The fasting treatment has been previously outlined,[2] and details will be published later. The patients treated at the Rockefeller Hospital now number above sixty. It remains true that cases of diabetes of severest type have been made and kept free from glycosuria and ketonuria. There have been deaths from complications and accidents before treatment could be completed, and physicians will be able to judge concerning these when the details are published. No complication has appeared in any case after treatment, unless the one death from tuberculosis be classified here. Five patients broke their diet and are dead. In the others, who have followed the diet, no inherent downward tendency has yet been observed, and progressive improvement seems to be evident in the majority. The longest observation is now only twenty-one months, so the ultimate results are still subject to question. It would not be strange to find that some severe diabetics have too little assimilative function left to maintain life, but thus far it has been possible to avoid such a confession. To some extent the tolerance, but especially the general well-being of the patients, have been improved by the introduction of vigorous exercise,[3] and most of those treated are now earning their living. It is hoped that a real reduction of the mortality of diabetes will be possible; but if ultimate results disappoint this hope, the treatment is justified by the benefit to the comfort and usefulness of the patients. It is in harmony with the observed benefits of carbohydrate restriction and undernutrition in the past history of diabetes, and it makes an efficient application to diabetes of one of the best established principles of all therapeutics, namely, rest of a weakened function. What is further desirable is obviously some positive means of strengthening the weakened function; but no such method has yet been discovered for diabetes.

2. Allen, F. M.: Prolonged Fasting in Diabetes, Am. Jour. Med. Sc., 1915, cl, 480.

3. Allen, F. M.: Note Concerning Exercise in the Treatment of Severe Diabetes, Boston Med. and Surg. Jour., 1915, clxxiii, 743.

A CASE OF DIABETES OF MAXIMUM SEVERITY WITH MARKED IMPROVEMENT

A STUDY OF BLOOD, URINE AND RESPIRATORY METABOLISM *

H. RAWLE GEYELIN, M.D.
AND
EUGENE F. DU BOIS, M.D.
NEW YORK

It has recently been possible to study in great detail a patient with diabetes who showed, six weeks after an acute onset, symptoms of maximum severity. This was followed by marked improvement under treatment, and within two months he was able to tolerate 160 gm. of carbohydrate on a mixed diet of 3,000 calories without hyperglycemia or the appearance of sugar or acetone bodies in the urine. It is the purpose of this paper to give a brief summary of the more important observations.[1]

The points of particular interest in regard to this case are:

1. Excessive protein waste over a long period of time.

2. Complete inability to oxidize sugar, including all of the sugar formed from the protein molecule.

3. Extreme acidosis, increasing during the first fast. The fat metabolized by the patient was practically all used in the formation of beta-oxybutyric acid.

4. Low respiratory quotient rising when the blood sugar was increasing and the acidosis was decreasing.

5. Very slight increase in basal heat production during the stage of unusual severity, with marked

* From the Medical Clinic of the Presbyterian Hospital, Columbia University, and the Russell Sage Institute of Pathology in affiliation with the Second Medical Division, Bellevue Hospital.

1. A more detailed account of the case with discussion of the treatment will shortly be published by one of the writers (H. R. G.), and the full calorimeter results with discussion will be published by Gephart, Aub and Du Bois.

decrease in metabolism during the period of low diet and recovery.

The excessive nitrogen loss which occurred in the first fasting period and continued over the following eight days during which the patient was given food seems to be higher than any hitherto observed in man. It is analogous to that seen in the fasting depancreatized[2] or phlorizinized[3] dog. Even when the D:N ratio fell to 1.12:1, the nitrogen excretion remained high. Münzer and Strasser[4] report the case of a man, fasting, whose nitrogen output was 32 gm. for the first day of coma, which was the day before he died. Von Noorden,[5] referring to this case, attributes the extreme destruction of protein tissue to toxic substances produced in coma. Mandel and Lusk[6] and Allard[7] report severe cases with from 11 to 14 gm. of nitrogen per day in the urine.

Our patient during his initial fast and subsequent low diet showed an output of glucose that could have been derived only from protein. For a considerable period the dextrose of the urine bore the ratio to the nitrogen of the urine of 3.6:1. This, as Lusk[6] has shown, is indicative of the total inability of the body to oxidize sugar. He has adequately termed this the "fatal ratio," as the few patients with uncomplicated diabetes recorded as having shown this ratio under properly controlled investigative conditions have died.[8]

The study of the patient in the Sage calorimeter[9] has shown the low respiratory quotients which Lusk[10] has calculated would be found in cases with the maximum D:N ratio of 2.6:1. The nonprotein quotients were 0.699, 0.743, 0.706, and 0.718, whereas the theoretical would be 0.707 somewhat modified by the formation of ammonia and of beta-oxybutyric acid. Apart from the figure of 0.743, which is difficult to explain, the other quotients show that the patient was not oxidizing any sugar at all.

The extraordinary rise in the respiratory quotient during the period of recovery is similar to that found in convalescence from typhoid fever.[11] With a greatly diminished total metabolism, the increasing tolerance for carbohydrate allowed the patient to derive a large percentage of calories from sugar. Still, some of the quotients are higher than can easily be explained. Joslin[12] has noted the same phenomenon.

Allen[13] has shown that with diabetics, acidosis usually decreases during a fast and in most cases disappears entirely. It is interesting to note that Cyril K., whose case is reported below, developed during his first fast an increasing degree of acidosis which reached an extreme grade as shown by clinical symptoms, by the decreased carbon dioxid tension in his alveolar air and by decreased carbon dioxid combining capacity of his blood plasma measured by the Van Slyke apparatus.[14] The acidosis as measured by these signs decreased markedly the day before there was a fall in the very high output of beta-oxybutyric acid. Subsequently the acidosis disappeared at the end of the second fast.

Benedict and Joslin,[15] in a recent study of the basal metabolism of severe diabetics, believe that these patients show an increase of from 15 to 20 per cent. above that of normals of corresponding height and

CLINICAL AND EXPERIMENTAL DATA IN CASE OF CYRIL K.

Date	Food Intake, Gm.			Output Glucose, Gm.	Urine N, Gm.	D:N Ratio	Beta-oxybutyric Acid Gm.	Blood CO_2, mm. Hg	Blood Sugar, per Cent.	Aver. R. Q.	Aver. Non-protein R. Q.	Average Cal. per Hour	Aver. Cal. per Sq. M. per Hour, Linear Formula*	Weight, Kg.
	Carbo.	Prot.	Fat											
1915														
Dec. 8- 9	0	0	0	74.9	27.9	2.68	43.7	30.4	0.313					
Dec. 9-10	0	0	0	78.3	29.8	2.61	34.6	....	.....	.....	.....	.....	.....	57.4
Dec. 10-11	0	0	0	74.2	24.8	2.95	....	26.6	0.310	.....	.....	.....	.....	57.8
Dec. 11-12	41.5	17.5	17.7	108.0	30.6	2.17	60.0	21.1	0.312	.....	.....	.....	.....	58.2
Dec. 12-13	50.	50.1	69.6	112.0	34.5	1.8	53.0	22.7	.....	.....	.....	.....	.....	56.7
Dec. 13-14†	50.	55.2	58.5	118.7	35.4	1.92	57.9	22.5	.....	.....	.....	.....	.....	57.0
Dec. 14-15	53.3	58.	51.2	118.5	37.73	1.73	55.2	....	.....	.....	.....	.....	.....	57.2
Dec. 15-16	23.5	118.6	41.0	167.9	36.37	3.97	70.8	19.95	.....	0.687	0.699	81.86	45.71	56.7
Dec. 16-17	0.4	99.	5.6	153.4	28.27	4.01	75.1	19.6	.....	0.714	0.743	76.43	42.61	56.8
Dec. 17-18	0.4	39.4	2.9	140.29	36.29	3.87	87.38	25.4	.....	.....	.....	.....	.....	57.9
Dec. 18-19	0	0	0	55.14	20.01	2.76	58.52	25.4	0.150	0.707	0.706	73.18	40.8	56.5
Dec. 19-20	0	0	0	44.25	16.72	2.65	56.84	49.7	.....	.....	.....	.....	.....	57.2
Dec. 20-21	1.0	10.	0	35.34	14.07	2.44	41.17	52.5	0.177	0.721	0.718	66.33	37.0	56.9
Dec. 21-22	1.6	20.	0	39.73	14.4	2.65	26.21	....	0.170	.....	.....	.....	.....	56.6
Dec. 22-23	5.6	21.	0.1	25.97	18.25	1.12	10.95	52.8	0.181	0.734	0.728	62.32	35.9	54.3
Dec. 23-24§	0	0	0	17.01	10.43	....	.....	46.3	0.206	.....	.....	.....	.....	54.9
Dec. 24-25	0	90.	15.8	15.16	18.32	....	.....	46.2	.....	.....	.....	.....	.....	53.0
Dec. 25-26	0	90.	15.8	32.75	32.70	....	.....	40.9	.....	.....	.....	.....	.....	53.4
Dec. 26-27	0	0	0	10.4	14.78									
Dec. 27-28	0	0	0	0	10.50	....	.....	....	.....	.....	.....	.....	.....	52.6
Dec. 28-29	0	0	0	0	9.05	....	0.241	40.55	0.195	.....	.....	.....	.....	52.3
Dec. 29-30	0	51.9	7.9	?	13.79	....	.....	....	.....	.....	.....	.....	.....	52.6
Dec. 30-31	0	0	0	+	13.72	....	.....	....	.....	.....	.....	.....	.....	52.3
1916														
Jan. 31- 1	0	0	0	0	8.78	....	.....	....	.....	.....	.....	.....	.....	51.2
Feb. 16¶	....	....	....	0	....	0	0	....	.....	0.915	0.973	42.95	25.4	45.8
Mar. 8¶	....	....	....	0	....	0	0	....	.....	0.860	0.872	50.02	29.1	48.3

§ Returned from Bellevue Hospital.

* Average basal normal 39.7 calories per square meter per hour.

† Transferred to Bellevue Hospital.

‡ After meals which might cause increase in metabolism of 5 to 10 per cent. above basal.

¶ Transferred to Bellevue Hospital. Liberal diabetic diet the days before these calorimeter observations.

2. Falta, Grote and Stachelin: Beitr. z. chem. Physiol. u. Path. (Hofmeister's), 1907, x, 199.
3. Reilly, Nolan and Lusk: Am. Jour. Physiol., 1895, i, 395.
4. Münzer and Strasser: Arch. f. exper. Path. u. Pharmakol., 1893, xxxii, 376.
5. Von Noorden: Die Zuckerkrankheit, 1912, p. 119.
6. Mandel, A. R., and Lusk, Graham: Diabetes Mellitus, THE JOURNAL A. M. A., July 23, 1904, p. 241.
7. Allard: Arch. f. exper. Path. u. Pharmakol., 1907, lvii, 1.
8. Greenwald: Jour. Biol. Chem., 1913, xvi, 375. A personal communication from Dr. Greenwald reports his patient still alive with high tolerance. Dr. N. B. Foster (Deutsch. Arch. f. klin. Med., 1913, 501) has reported a similar case. This patient has been lost track of, but is believed to be dead.
9. Clinical Calorimetry: Papers 1-8, Arch. Int. Med., May, 1915.
10. Lusk, Graham: Clinical Calorimetry, Eighth Paper, On the Diabetic Respiratory Quotient, Arch. Int. Med., May, 1915, p. 939.
11. Coleman, Warren, and Du Bois, E. F.: Clinical Calorimetry, Seventh Paper, Calorimetric Observations on the Metabolism of Typhoid Patients With and Without Food, Arch. Int. Med., May, 1915, p. 887.
12. Joslin, E. P.: Carbohydrate Utilization in Diabetes, Arch. Int. Med., November, 1915, p. 693.
13. Allen: New York State Jour. Med., 1915, xv, 330.
14. Van Slyke: Proc. Soc. Exper. Biol. and Med., 1915, xii, 165.
15. Benedict and Joslin: A Study of Metabolism in Severe Diabetes, Publication 176, Carnegie Institution of Washington, 1912.

weight. This they attribute to the stimulation of acidosis. Some observers consider that there is little or no increase in severe diabetes.

Cyril K., when first observed in the calorimeter, showed a slight increase above the average metabolism. The average normal basal calories per square meter per hour is 39.7; the results obtained December 15 are about 15 per cent. above this level, and December 18, 7 per cent. above. On both of these days the determinations were not basal but were raised perhaps from 5 to 10 per cent. by food taken the morning of the observations. His first basal determination, December 18, showed an increase of only 3 per cent. above the normal in spite of large nitrogen elimination and some acidosis. The remarkable fall of metabolism to 36 per cent. below normal, February 16, as a result of prolonged underfeeding, has never before been equaled.

In view of the fact that high protein metabolism is known to increase the total heat production, it seems fair to attribute the increased metabolism of Cyril K. to this factor rather than to acidosis.

CASE HISTORY

History.—Cyril K., man, aged 19, college student, admitted to Presbyterian Hospital, service of Dr. Swift, Dec. 7, 1915, discharged March 7, 1916, had no history of diabetes in his family. There was no history of recent infection. His average weight with clothes was 172 pounds. He was always active, engaged in violent athletics, and had been a heavy meat eater. Nov. 1, 1915, he noticed that he was getting thin. He felt weak. He had no ambition and was easily tired. Nov. 15, 1915, a physician found sugar, 4.5 per cent. Polydipsia appeared and polyuria was noted in twenty-four hour specimen (128 ounces). About November 20, he weighed only 155 pounds with his overcoat on. He has been on a supposed low carbohydrate diet (from 15 to 30 gm.?) with large meat intake since Nov. 15, 1915. Since December 1, he had felt very drowsy and slept a great deal. His last food was taken at 7 p. m., December 6. December 7 in the morning he vomited water with lemon juice.

Physical Examination.—The patient was 6 feet 2 inches (188 cm.) tall, and extremely emaciated. He was very drowsy. His speech was slow and deliberate. He answered questions intelligently but with evident effort to rouse himself from semistupor. The skin was very dry, as were also the lips and mucous membrane of the entire mouth. The pharynx was dry and parched. There was an "acetone odor" on the breath. Inspiration and expiration were slightly prolonged and deep.

Dec. 11, 1915, he had grown slightly worse. There was considerable nausea. The mental condition was more drowsy. Respirations were typically of the "air hunger" type. The patient had been receiving from 53 to 114 gm. of sodium bicarbonate daily, chiefly intravenously. He had had considerable nausea. As the condition did not improve on fasting, it was deemed advisable to give him food.

December 13, in the afternoon, the patient seemed better. There was less "air hunger," and he was brighter mentally, more alert, and less drowsy.

December 14, he was transferred to Bellevue Hospital. He had been able to eat milk and eggs for the past sixty hours.

December 14 to 18, drowsiness, air hunger and anorexia were disappearing. A furuncle on the back of the neck was incised, and 3 or 4 c.c. of pus evacuated.

December 19 to 23, there were no clinical signs of acidosis. The patient felt and looked much better. The furuncle was beginning to heal.

December 23, the patient was returned to the Presbyterian Hospital.

Jan. 1, 1916, he became permanently sugar free, and ketone bodies disappeared from the urine, after a second fast.

February 24, there was a tolerance of 160 gm. of carbohydrate and 3,500 calories.

February 27 to 29, a peritonsillar abscess developed, accompanied by marked decrease in food tolerance and a return of hyperglycemia.

March 7, former tolerance was regained. Blood sugar was normal, 0.081 per cent. The patient was discharged, weight 105 pounds. The food consisted of 90 gm. of carbohydrate; total calories, 2,559.

March 21, when the patient was last seen, he had gained 8 pounds over his weight when discharged, and he had increased his carbohydrate intake 20 gm. without the appearance of sugar (other two food constituents being the same). There was no glycosuria.

CONCLUSIONS

In its clinical course this case is somewhat analogous to an acute infection, as suggested by rapid onset, severity of symptoms and subsequent regaining of a high food tolerance. The fact that a peritonsillar abscess lowered the food tolerance markedly shows that the patient still has a potential diabetes.

Laboratory observations on this patient bear out the complete analogy to the severest form of experimental diabetes, which in animals has always proved fatal.

Complete analogy to experimental diabetes has never been observed in human beings before, certainly not with marked improvement.

UMBILICAL DYSPEPSIA *

CHARLES D. AARON, Sc.D., M.D.
Professor of Gastro-Enterology, Detroit College of Medicine and Surgery; Consulting Gastro-Enterologist, Harper Hospital
DETROIT

A defect in the abdominal parietes preventing closure of the umbilical canal results in what is known as a congenital opening. Only when there is protrusion do we regard it as a hernia. It is a somewhat common occurrence to find the opening at the navel unobliterated. The defect is at the opening for the omphalomesenteric duct and the urachus. In the majority of instances, no injury results from this nonclosure. Increased abdominal pressure, coughing, lifting, straining at stool, etc., often lead to an umbilical hernia, which I do not wish to consider here.

This umbilical opening may at first be very small—so small as to escape the notice of the examining physician, and later assume large dimensions. It is always congenital in origin.

All these patients have symptoms of nervous dyspepsia due to increased irritability of the autonomic nervous system. They are often free from distressing symptoms for days, and then, from some trivial cause, the symptoms recur. The appetite is apt to be capricious; coarse food may be taken without aggravation of symptoms, and then again a diet which ordinarily might be taken with impunity by a person suffering from organic disease of the gastro-intestinal tract is rejected as not agreeing with the patient.

The patient complains of fulness of the head, headache, inability to work, vertigo, lassitude and depression. He may experience uneasy sensations from one to two hours after meals, or have a feeling of heaviness immediately after eating. The degree of discomfort does not depend on the quality or quantity of food taken. The patient is usually constipated. The nutrition is good. When the subjective symptoms

* Read before the American Gastro-Enterological Association, Washington, D. C., May 8, 1916.

become severe, loss of weight results from refusal of the patient to partake of adequate nourishment. Deep palpation with the ball of the finger over the umbilicus elicits severe pain. This may radiate in different directions, or be referred to some distant part of the abdomen. As soon as the pressure is released, the pain ceases. The stomach may functionate in a perfectly normal manner. In some cases, however, hyperacidity is present. The diagnosis is made by the pressure pain over the umbilicus, together with the discovery of the failure of parietal union.

The chemical examination of the stomach contents in all these cases shows a hyperacidity.

In a number of cases we were unable to demonstrate umbilical openings, but on pressure over the umbilicus, severe pain was elicited at the site of pressure and often referred pain and distress in other parts of the abdomen.

As the treatment of these cases has been along similar lines, I shall describe it without going into the details of each case. The principal idea is to eliminate irritation of the patent umbilicus. This is best accomplished by bringing the edges of this congenital opening as close together as possible with adhesive plaster 2 inches wide and long enough to extend from 2½ to 4 inches on either side of the umbilical opening. The surface of the abdomen where this is to be applied is thoroughly cleansed with soap, water and alcohol. One must be particularly careful that the umbilicus iself is well cleansed. If there is an excessive growth of hair on the abdomen, it is shaved off with a safety razor. I have found this instrument much more satisfactory than the ordinary razor. The first piece of adhesive is applied in the following manner: The edges of the navel are approximated by an assistant, and the strip of adhesive is applied directly over the umbilicus and drawn as tightly as possible. Without an assistant the binding can be done by applying the adhesive to one side of the abdomen and then pressing with the hand on the opposite side, and fastening the other end of the plaster to this side. The puckering of the skin in the midline is smoothed away. The remaining two strips of plaster are fastened so as to overlap the central strip above and below. In this manner we have been able to give almost immediate relief from pain and the distressing symptoms. The patient is able to take his bath in the same manner to which he has been accustomed, as the adhesive is very resistant to the action of water. Its removal when loose is facilitated by the use of ether or oil of wintergreen.

This treatment is usually continued from four to ten weeks. On removal of the adhesive, one will often find vesicles and sometimes pustules in the area which has been covered. A single application of tincture of iodin over this area will go far toward clearing up these eruptions. If necessary, application of the adhesive may be discontinued for several days at a time.

A valuable adjunct to this treatment is the use of an elastic abdominal support.

The medical treatment is determined by the character of the gastric secretions. In cases of hyperchlorhydria the alkalies are given. The presence of vagotonia necessitates the use of belladonna or its alkaloid, atropin. I have also found the bromids of valuable assistance in bringing about recovery, especially in cases which show symptoms of depression.

The appetite may often be stimulated, if necessary, by the use of stomachics or other bitters. The diet should be composed of large quantities of rich, nourishing, easily digested foods, it being advisable to increase the amount of butter, cream, milk, eggs and other articles of a similar nature.

38 West Adams Avenue.

CONTROL OF DIPHTHERIA

D. M. LEWIS, M.D.
Epidemiologist, Board of Health
NEW HAVEN, CONN.

The practice in vogue for the control of diphtheria outbreaks is based on bacteriologic control of all contacts and convalescents. Those yielding cultures of the Klebs-Loeffler bacillus are isolated and kept in isolation until negative cultural results are obtained. Failing this result, the virulence test is relied on as a criterion of safety. Thus the laboratory leads the way, field work being subordinated to it.

Two years' practical experience, both as bacteriologist and as epidemiologist, has convinced me of the fallacy of depending primarily on laboratory tests.

CARRIERS

Carriers are of two types, pharyngeal and nasal. The former, constituting less than one fourth of all carriers, show acute hyperemia superimposed on chronic pharyngeal hypertrophy. The culture result is positive and there is a history of an attack of diphtheria.

The second or nasal type is characteristic. There is a bloody, purulent anterior nasal discharge, usually unilateral, with excoriation of the upper lip and neighboring skin. By attention to these signs one may easily pick out three fourths of all true carriers.

The nasal type divides into two classes: One gives a history of an attack of diphtheria, with frequent epistaxis in its course or during convalescence, the characteristic discharge having developed after a few weeks or, rarely, a few months; in the other, the patient presents the lesion without having had the disease. The nasal type predominates among children under 10 years of age, and, of these, those who have not had the disease have been infected either by nasal carriers or by older children in their family who have had it. Nasal carriers who have not already had the disease do not develop pharyngeal diphtheria.

The seasonal prevalence in carriers coincides with that of coryza.

CONTROL PROCEDURE

In the first year's campaign, I followed, substantially, the prevalent practice as already outlined. But, in the course of it, I found reason to regard inspection of nasopharynges as less misleading than culture data. Thus, not a single case of diphtheria could be traced to infection from those in whom physical examination gave a negative and culture a positive result.

In the second year, therefore, I modified my practice and, giving more prominence to field work, took courage to rely mainly upon it. No contacts were isolated if the nasopharynx was normal, even though the cultural result were positive. In the same conditions quarantine was raised. Those of the exposed who showed acute pharyngeal hyperemia were isolated

and kept under observation. I had no reason to regret this course of action, for no return cases or development of carriers resulted from its adoption. On the other hand, I was able to trace two new infections to a case in which, although the pharynx was yet mildly inflamed, quarantine had been raised on the strength of two successive negative cultures. This person proved to be a pharyngeal carrier.

Missed cases and carriers were also sought by a neighborhood survey on the following lines: investigation of all school absentees and all children in school with nasal discharges, their names and addresses being furnished by postal card notification through the schoolteacher. From the data so obtained, in conjunction with that of the neighborhood cases, a card index is made which is of the greatest aid in tracing each future focus of infection.

The procedure followed in the first year necessitated the making of 5,000 cultures. In the second only a third of that number were made, but the inspections were doubled.

RESULTS

We started in October with a number of reported cases of diphtheria equal to that for the same period of previous years. In December, January and February, for the first time in its history, the city had weeks without a reported case. Other weeks produced half as many cases as the corresponding weeks of the previous year, and only a quarter as many as earlier years. The results of a comparison between the statistics of New Haven and those of neighboring cities and towns for the same period are equally favorable to the former.

To secure practically complete control, two further precautionary measures are needful. The first is the recurring inspection, by field nurses, of children under school age in families with no school absentees. The second is the notification, to the board of health, of the arrival of families moving into the city.

CONCLUSIONS

In the control of diphtheria, the field work of the epidemiologist plays the more important rôle.

The means by which he operates are the physical examination of patients and contacts, the subsequent careful supervision of the former at the time of head colds and sore throats, and the constant family and neighborhood survey for carriers.

Scurvy and Pasteurized Milk.—During a discussion on "Vitamins" at a meeting of the Academy of Medicine, New York, the opinion was expressed and confirmed by reports of clinical observations that pasteurized milk was responsible for a mild form of scurvy which was apparently on the increase in this city. The fact was emphasized, however, that this did not mean that the use of pasteurized milk should be abandoned but that it should be supplemented by orange juice or other suitable antiscorbutic. Following this meeting the department of health announces that instructions have been given to the physicians and nurses in charge of its milk stations and the baby welfare work in the homes to be on the outlook for any of the early signs of scurvy and to insist on the use of orange juice or other suitable antiscorbutic when babies are exclusively fed on pasteurized milk. It is also announced that the department of health has no intention of altering its policy with reference to pasteurized milk and that it likewise does not look with favor on any administration of milk control in any community which eliminates the privilege of securing a safe high-grade raw milk for those whose lives may depend on its use.

OBSERVATIONS IN THE DIAGNOSIS AND TREATMENT OF BRAIN INJURIES IN ADULTS*

WILLIAM SHARPE, M.D.
Professor of Neurologic Surgery, New York Polyclinic Hospital and Medical School
NEW YORK

The mortality resulting from brain injuries is very high. During the period from 1900 to 1910, the mortality figures at three of the large hospitals in New York ranged from 46 to 68 per cent. of all cases of brain injuries. In a report recently published by Dr. Besley[1] of the Cook County Hospital of Chicago regarding 1,000 consecutive patients having fractures of the skull, the mortality was 53 per cent. This death rate is indeed appalling, and it undoubtedly accounts for the attitude of many doctors and most hospitals toward patients having fractures of the skull, particularly of the base. If the patient recovers, remarkable—he had a fracture of the skull. If he dies—well, he had a fracture of the skull.

It is this attitude of comparative hopelessness in the treatment of brain injuries that has allowed these cases to be almost neglected in the general hospital. I well remember being severely reprimanded as a house officer for having admitted to the hospital from the ambulance a fracture of the base of the skull, and not having sent the patient to Bellevue Hospital. As a house surgeon, my instructions were to keep the beds free of fractures of the base of the skull, the reason being that so little apparently could be done for these conditions. The patients either improved after a long convalescence, or more frequently they died, the treatment other than the ordinary routine palliative procedures being of little or no benefit.

The belief has long been maintained that the patients with brain injuries, especially following fractures of the base of the skull, get along just as well without operation as with operation. This position is well taken if the patients requiring operation are not operated on until they reach the dangerous stage of medullary compression and even the later stage of medullary edema; then it matters very little whether the patient is operated on or not—in fact, what chance of recovery the patient may have is taken away by an operation at that late and dangerous period of medullary edema, the operation being just an added shock, so that death is usually hastened. The mortality from 1900 to 1910 was 87 per cent. following operation on patients who showed signs of high medullary compression and edema. The patient, however, should not be allowed to reach that dangerous medullary stage. It should be anticipated by repeated examinations and tests, and if the early signs of a definite increase of the intracranial pressure appear, then the operation should be advised immediately.

An early operation is advisable, not only as a means of saving the life of the patient, but also to lessen the danger of posttraumatic conditions, so common after fractures of the skull. These conditions of nervous instability, such as marked depression, irritableness, persistent headache and even epilepsy following brain injury, especially as the result of basal fractures, are due in the majority of cases, I believe, to the resulting unrelieved increased intracranial pressure prolonged

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* Read before the New York Neurological Society, March 7, 1916.

1. Besley, F. A.: A Contribution to the Subject of Skull Fractures, THE JOURNAL A. M. A., Jan. 29, 1916, p. 345.

over a period of several weeks or more, and frequently resulting in the chronic edematous, swollen brains, so commonly observed at later operation on these patients. The cortical irritability may become so high as to allow epileptiform seizures to occur.

During the past three years I have had the opportunity of examining personally and treating 282 adult patients having one or more traumatic lesions of the brain. Of the 239 recent acute conditions, operations were performed in seventy-nine, or 34 per cent., of the patients treated, whereas of the forty-three old chronic injuries of the brain, twenty required surgical treatment. I shall consider only brain injuries occurring in adults, and not the rather common traumatic cerebral lesions of children resulting from difficult labor and intracranial hemorrhage at birth, with or without the use of instruments, and later giving the clinical picture of impaired mentality and the various forms of cerebral spastic paralysis.

ACUTE BRAIN INJURIES

The 239 recent brain injuries were due to the following causes:

1. Fractures of the base of the skull alone, 159; operations, 40; total died, 35 (without operation, 29; with operation, 6).
2. Fractures of vault of skull alone, 27; operations, 15; total died, 5 (without operation, 4; with operation, 1).
3. Associated fractures of vault and base, 41; operations, 15; total died, 17 (without operation, 14; with operation, 3).
4. Bullet wounds of brain, 9; operations, 7; total died, 5 (without operation, 2; with operation, 3).
5. Stab wounds of brain, 3; operations, 2; died, 1 (with operation; hemorrhage into ventricle and meningitis).

That is, of a total of 239 patients with recent brain injuries (227 of them being the result of fractures of the skull), 79 of them were operated on with 14 deaths, whereas 160 of the patients were not operated on and 49 deaths resulted, making the total number of deaths 63, and thus a total mortality of 30.7 per cent. (It must be remembered that many of the patients who died without operation were in a moribund condition owing not only to the shock and the brain injury but also to other severe injuries, such as internal injuries, rupture of the large viscera, fractures of the long bones, etc. If we exclude these moribund patients who died within three hours after admission to the hospital, then the total mortality would be only 19 per cent.)

Naturally the most common cause of brain injuries in times of peace are fractures of the skull, either of the vault or of the base. Fractures of the skull, however, may occur, and undoubtedly do frequently occur, without there being a resulting lesion of the brain which can be clinically demonstrated. These latent fractures of the skull are very common. In these cases there are no definite clinical signs to indicate an injury of the brain. Only the Roentgen rays can demonstrate the presence of the fracture, particularly of the vault, and there are undoubtedly many of these cases in which the Roentgen rays do not reveal the fracture. In these latent fractures, as well as the fractures which can be demonstrated by palpation, the escape of blood and cerebrospinal fluid into the ear, the orbit, the nose, the mouth and the tissues of the scalp and mastoid areas—fractures which do not produce signs of brain injury—operation is not performed. One does not operate for the fracture of the skull, but only to remove or to lessen the effect of the fracture on the brain when these injuries can be demonstrated clinically. To be sure, all depressed fractures of the vault should be elevated or removed for fear of the later effect of such a local pressure and possible cortical irritant.

It is in fractures of the base, however, that much diversity of opinion has occurred; naturally, the fracture itself could not be operated on, and only within the last few years has it been realized that the fracture itself is of very little consequence—it is the resulting hemorrhage and edema of the brain which are the dangerous complications of basal fractures. Meningitis is always a complication to be feared in fractures opening into the ears, nose and pharynx, and in compound fractures of the vault. Therefore, in basal fractures an operation is advisable to lessen the increased intracranial pressure and thus avoid the danger of a medullary compression and possible medullary edema—whether there is a large localized intracranial hemorrhage, multiple punctate hemorrhages throughout the cortex, or merely a wet edematous, swollen brain; the last condition is a most common cause of death following basal fractures, and unless a necropsy is performed immediately after death, a normal appearing brain is frequently exposed. In this series of seventy-nine patients operated on, I have been impressed by the absence of extradural middle meningeal hemorrhage unassociated with subdural lesions; I feel that it is a rather uncommon condition by itself—less frequent than our textbooks would tend to impress on us.

The presence of paralysis, a change in the reflexes—both superficial and deep, localized epileptiform seizures and rarely impairment of sensation are at times of great assistance in determining the site of the brain lesion. Unfortunately, in the great majority of the cases there are no such localizing signs, and chiefly for this reason, it has been thought advisable, in the past, to wait for these localizing signs. Thus the patient was frequently allowed to reach the dangerous stage of medullary impairment. Naturally, in cases of large single hemorrhage, if the operative incision could be placed directly over the lesion, then the clot could be entirely removed. This ideal result is rarely possible on account of the infrequency of single localized hemorrhage, and the difficulty of localizing the single hemorrhage when present. It is my opinion that in patients having no definite localizing signs, who show definite signs of an increased intracranial pressure—whether that pressure is due to hemorrhage or to edema—an early subtemporal decompression is advisable, both to lessen the general intracranial pressure and thereby the local effects of a single hemorrhage if present, and to provide a means of drainage of the blood and the increased cerebrospinal fluid from the middle fossa—the most common site of basal fractures and the important drainage cistern above the tentorium.

Regarding the signs of increased intracranial pressure, it is rarely possible to observe with the ophthalmoscope the early stages of choked disk within six hours after the injury. If the shock is slight and the intracranial hemorrhage is a fairly rapid one with insufficient outlet, then a blurring of the nasal halves of the optic disks may occur. As a rule, however, the signs of shock overshadow or even prevent the signs of increased intracranial pressure. If the patient recovers from the shock, then the blood pressure gradually rises until the signs of an increased intracranial pressure appear. It is poor surgical judgment to operate on patients having brain injuries, no matter how extreme, if the patient is in such shock that the

pulse rate is greater than 120; for obviously the shock overshadows the signs of intracranial pressure, if present, and any operation at this stage will be but an added shock and thereby merely hasten death. If the patient cannot survive the condition of shock, any operative procedure will certainly not aid him.

Naturally, if the patient is in a condition of severe shock with a pulse rate above 120, it is much wiser to avoid all unnecessary examinations, and depend on the routine expectant palliative treatment for such conditions: absolute quiet, ice bag to the head, hot rectal solutions of normal saline and black coffee, and opiates, hypodermically, if necessary, to quiet the patient.

If the patient can survive this acute condition of shock, then the pulse rate gradually descends, the blood pressure rises, and the deep reflexes return. It is then, even if several days have been required for the patient to overcome the extreme signs of shock, that repeated ophthalmoscopic examinations of the fundi should be made, small amounts of cerebrospinal fluid withdrawn by lumbar puncture to estimate its pressure and the presence of blood, and the rate of the pulse and respirations carefully noted every ten minutes. Should the pulse rate gradually descend from 100 to 90, and then to 80, 70 and then 60, and even lower, and if the ophthalmoscope shows the signs of increasing intracranial pressure confirmed by lumbar puncture with or without the presence of blood (for I have found subdural hemorrhage in a number of patients and yet the cerebrospinal fluid by lumbar puncture was clear), then a relief of this intracranial pressure should be strongly considered, whether it is due to a localized hemorrhage or merely to a very edematous, swollen brain.

Any operative procedure for the relief of the intracranial pressure should be undertaken while the pulse rate is descending, at 60 or below, for once it has reached its lowest level of medullary compression, the danger of a medullary edema is great. If it does occur, the pulse rate begins to rise rapidly, and I have yet to see a patient recover, whether or not operation is performed, once the pulse rate has descended to its lowest level and then begun to rise rapidly. The danger of the operation while the pulse rate is descending is far less than the danger of the possible onset of the signs of a medullary edema, the mortality being then practically 100 per cent. The appearance of a definite paralysis of the extremities or the onset of convulsive seizures will naturally tend to an early operation.

In the less severe conditions of intracranial pressure resulting from brain injuries, repeated lumbar punctures are at times of great value in lessening the intracranial pressure and thereby the stupor or delirium and the severe headache, and improving the general condition of the patient in many ways. If, however, the intracranial pressure is very high, this method of lowering it is rather dangerous for fear of medullary choking in the foramen magnum; this danger, however, is not so great as in tumor cases.

Changes in the reflexes are interesting in these cases. In several of them as the patient emerges from the condition of shock to enter the pressure stage, the abdominal reflexes will frequently appear depressed on the side opposite to the cerebral lesion, and at the same time it is usually possible to obtain a definite Chaddock reflex; but the Babinski reflex is absent and reappears only later, especially if the abdominal reflex cannot then be elicited at all. It may be that the Chaddock method of eliciting the dorsal extension of the great toe is possibly a more delicate one than the Babinski method, as it is in many cases its forerunner.

The Roentgen rays are of little importance in the treatment of fractures of the skull. In doubtful depressed fractures of the vault they are, at times, of some help; but in basal fractures, and even in linear fractures of the vault, not only is it rare for the line of fracture to be revealed by the Roentgen rays, but the treatment is the same whether or not a fracture is evident.

The fracture is really the unimportant factor in brain injuries, and in many cases the presence of a fracture so situated as to allow the escape of blood and cerebrospinal fluid from the intracranial cavity would so lessen the danger of the increased intracranial pressure that an operation would be avoided. This natural decompression and drainage would always be greatly welcomed if it were not for the danger of infection. In several cases of the most severe brain injuries, there was no fracture to be demonstrated at the necropsy. In two cases in which the patients recovered from the operations, no fracture of the vault was found at the site of the impact of the bullet and of the baseball, respectively, and yet in both of these cases a large supracortical hemorrhage was exposed. Subconjunctival as well as orbital hemorrhage does not necessarily indicate a fracture of the adjacent bone; similarly, blood may be present in the middle ear and yet no fracture can be demonstrated at necropsy—merely a subperiosteal hemorrhage. The presence of cerebrospinal fluid in the middle ear, with or without a rupture of the tympanic membrane, naturally is conclusive of a fracture.

In conditions of gunshot and stab wounds of the head, just as in intraperitoneal wounds, if it is ascertained that the subdural cavity has been entered, then an enlargement of the opening in the vault should always be made; if the intracranial pressure is high, a subtemporal decompression is advisable. Not only will this method of treatment lessen the great danger of infection and meningitis, but also it will permit free drainage of any hemorrhage, and thus tend to prevent future complications, especially epileptiform seizures. Naturally, if the location of the foreign body or bullet is subcortical, it is much wiser, as a rule, not to attempt its removal for fear of damaging the adjacent nerve cells and tracts; in selected cases, the interrupter magnet may be used to locate the foreign body and even extract it along its pathway through the cortex.

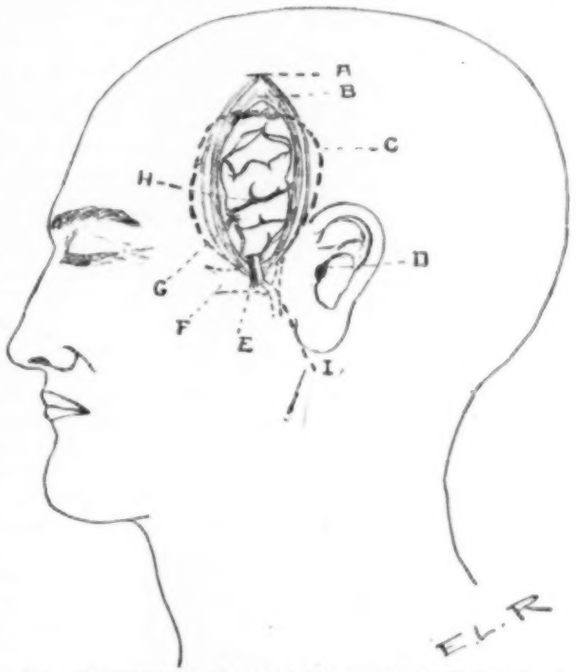
CHRONIC BRAIN INJURIES

It was surprising to ascertain the high percentage of posttraumatic conditions occurring in brain injuries. In 1913, I began to trace the patients discharged as cured from three of the large hospitals in this city during the period of ten years from 1900 to 1910. These patients had all been diagnosed as having fractures of the skull, either of the vault or of the base. The period of hospital residence varied from fourteen days to six weeks. Naturally, it was rather difficult to locate many of these patients, as ambulance patients of the poorer class change their residence frequently. I was able to learn personally of only 34 per cent. of those discharged as cured. Of this 34 per cent., however, 67 per cent. were still suffering from the effects of the injury; that is, they did not enjoy the same good health as they did before the injury. The most common complaint was headache, especially on exertion; they were easily fatigued; then came vertigo, which

was always subjective in character; there was a lessened emotional control, usually of the depressed type—at times the patients were irritable, unable to keep employment, and then again listless, lacking interest in things and termed "happy-go-lucky," "good-for-nothing," "bums," etc. Epileptiform spells were not of infrequent occurrence.

The histories of these patients revealed that 88 per cent. of them, apparently those with the more severe lesions, had remained in the hospital more than three weeks, and that 74 per cent. of them had had a pulse rate below 70. That is, these patients who were, we may say, permanently impaired by the brain injury, all required a hospital residence longer than two weeks, and the majority of them showed at least one sign of a possible increased intracranial pressure by the lowered pulse rate. It was the exceptional patient on whom an ophthalmoscopic examination or a lumbar puncture had been made.

It is my belief that these impaired posttraumatic patients are the ones who had and still have an increased intracranial pressure as a result of the accident, whether it is due to a hemorrhage of varying degree or to a wet edematous brain, and it is this condition which prolongs their hospital residence. I believe that these patients are the ones who should be most carefully examined both with the ophthalmoscope and by repeated lumbar punctures, if necessary, in order to ascertain the presence of a marked increase of the intracranial pressure. It is my opinion that a definite increase of the intracranial pressure prolonged over a period of weeks following the injury may so impair the function and the blood supply of the cortical nerve cells that a posttraumatic condition may easily result; a prolonged increase of the cerebrospinal fluid may be the forerunner of the chronic edematous wet brains so commonly observed later in these patients.



Site and appearance of typical subtemporal decompression: *A*, upper boundary of incision at parietal crest; *B*, attachment of temporal muscle and fascia; *C*, extent of bone removed; *D*, external auditory meatus; *E*, drain under temporosphenoidal lobe; *F*, lower boundary of incision at zygoma; *G*, branch of middle meningeal artery, ligated by silver clip; *H*, sylvian fissure; *I*, location of temporal artery.

Not only to lessen the high mortality of brain injuries, but also to avoid these common posttraumatic conditions, I feel that an early relief of a marked increase of the intracranial pressure in these patients is most advisable, and even in those patients who, months after the injury and the routine expectant palliative treatment, still show definite signs of a posttraumatic condition with increased intracranial pressure, I believe that a decompression will frequently effect a cure. Naturally, great care must be used to differentiate the organic posttraumatic conditions from the functional types; a careful ophthalmoscopic examination and the measurement of the pressure of the cerebrospinal fluid by lumbar puncture are essential; any localizing signs and especially jacksonian seizures are very helpful. I have been much impressed by the frequency of a bilateral Babinski reflex in these patients and also depressed and even absent abdominal reflexes, so that I feel that if patients were more carefully observed after their discharge from the hospital, the necessity for an early relief of the condition would be more commonly realized.

During the past three years, I have operated on twenty-nine patients who had had a brain injury of from six months' to sixteen years' duration. These patients all showed definite signs of an intracranial lesion associated with increased intracranial pressure. Epileptiform attacks occurred in eleven of them. One patient died after the operation from infection—an inexcusable complication. Of the other twenty-eight patients, eleven are now entirely well; nine are improved, and the remaining eight patients are the same as before the operation; in no patient was the condition made worse.

A CAUSE

The frequency of intracranial tumors of the sarcomatous type, especially of the meninges and bone, occurring in patients who have had a fracture of the vault, is more than a mere coincidence. These tumors usually form at or beneath the site of the fracture of the vault, are of slow growth, and the first signs other than headache are usually those of cortical irritation, and later of increased intracranial pressure. I have recently removed a large sarcoma of dura and bone from the left temporosphenoidal area, just beneath a linear fracture of the left squamous bone, which had caused rupture of the left meningeal artery and a resulting extradural hemorrhage over that area. The irritative presence of this hemorrhage may have stimulated the tumor growth.

OPERATIVE TREATMENT

The most satisfactory operation for the treatment of brain injuries, particularly those resulting from fractures of the base of the skull and associated with high intracranial pressure, is the subtemporal decompression; that is, the bone underlying the temporal muscle is rongeured away to a diameter of 2 to 3 inches, and the dura opened so that free drainage of subdural blood and cerebrospinal fluid may occur. As the dura is nonelastic in adults, it is always opened and left open so that a permanent decompression is obtained; this is essential in order to offset the pressure effects of a later swollen, edematous brain. A vertical skin incision from the parietal crest to the zygoma (and not a curved incision) is used in order to obtain better hemostasis, to preserve more easily the attachment of the temporal muscle to the parietal crest and thus insure a stronger closure of the muscle over the

bony opening, and, lastly, to facilitate the drainage of subdural blood and cerebrospinal fluid from the middle fossa at the lowest point. The fibers of the temporal muscle are merely separated longitudinally so that they can easily be reunited after the underlying bone has been removed. A rubber tissue drain is left at the lower angle of the incision for two days, and in this manner there is a free outlet for any subdural hemorrhage; usually, the cerebrospinal fluid becomes clear within thirty-six hours.

As the majority of fractures of the skull occur in the middle fossa and the squamous area of the vault, the subtemporal decompression exposes this area most directly, and allows a careful exploration of the middle meningeal artery, which may be torn. The operation is not a formidable one; naturally, perfect asepsis is essential. The anesthetic should be administered by an expert.

CONCLUSIONS

The mortality of brain injuries in adults is high chiefly because patients are allowed to reach the dangerous stage of medullary compression—the result of extreme intracranial pressure and a condition that should be and can be in most cases anticipated by careful examinations and then avoided by an early decompression. Patients, however, should not be operated on when in a condition of shock sufficient to produce a pulse rate of over 120.

All depressed fractures of the vault should be elevated or removed for fear of later complications.

Naturally all fractures of the skull are not operated on—the expectant palliative treatment alone is in most cases all that is necessary to obtain an excellent recovery, but there is a large number of patients, less than 50 per cent., who do require the operative relief of the increased intracranial pressure due to hemorrhage or to an increase in the amount of cerebrospinal fluid sufficient to produce a wet edematous swollen brain.

The posttraumatic conditions are frequently the result of this prolonged increase of the intracranial pressure, and a large percentage of these conditions can be improved by lessening this intracranial pressure even months after the injury.

The operation of choice in both the selected acute and the chronic cases of brain injury is the subtemporal decompression.

20 West Fiftieth Street.

Public Health in Queensland.—The annual report of J. I. Moore, Commissioner of Public Health of Queensland, to June 30, 1915, shows a gratifying state of the public health for the period named. The estimated population for 1914 was 674,932, an increase of 22,377 over 1913. The crude birth rate per thousand on the estimated population for 1914 was 29.46 as against 30.26 for the preceding year. Though this presents a slight decrease, it is shown that it compares favorably with eleven other countries, none of which exceeds the figure for Queensland, that for Germany being 28.3 and that for France being as low as 19. The crude death rate for 1914 was 9.97, which is said to compare favorably with other Australasian states, and is lower than that of twelve other countries, the figures for which for the year 1912 range from 12.4 for Canada to 18.2 for Italy. The infant mortality rate per thousand born for children under 1 year was 63.87, an increase over the previous year, when the figure was 62. This again is shown to be lower than the figures of other countries for the years 1912 and 1914, which range from 69.7 for New South Wales to 147 for the German Empire in 1912. The marriage rate, 8.73, showed a slight increase over the previous year when it was 8.68.

SEX GLAND IMPLANTATION

ADDITIONAL CASES AND CONCLUSIONS TO DATE

G. FRANK LYDSTON, M.D.

CHICAGO

Reports[1] have been published of the experimental work which I have performed in sex gland implantations with material taken from dead bodies. The reports comprise certain physiologic and therapeutic observations and conclusions based on the experiments, together with illustrations of the microscopic and histologic results of the implantations. In summary, my various contributions present the following:

1. For hormone therapy purposes, successful total or partial hetero-implantation of human sex glands in both male and female is practicable. By "successful" implantation, I mean the formation of new blood supply, and a more or less prolonged existence of the gland with coincident hormone production.

2. The prospect of success from anastomotic implantation—with resulting generative functioning—at present is not brilliant, although possibly not hopeless.

3. Glands taken from the living subject are most desirable, though rarely obtainable.

4. Glands taken from the healthy dead body at any time prior to the beginning of decomposition are of therapeutic value equal to that of those taken from the living, if implantation is successful.

5. In human beings the glands of the male may be successfully implanted on the female, and probably the reverse obtains. The hormone of the one possibly is useful to the other.[2]

6. The tissues of the female apparently are more hospitable to the implanted male sex glands than are the tissues of the male.[3]

7. The physiologic and therapeutic results occur independently of the site of implantation, but the vicinity of the peritoneum (extra-abdominal) and the canal of Nuck in the female, and of the tunica vaginalis in the male, are the sites of election.

8. Blood pressure apparently is modified, suggesting improved nutrition of the heart and vessels.

9. The development of senility possibly can be retarded and longevity increased by internal sex secretions derived from implantation.

10. That arteriosclerosis in its early stages will be benefited by sex gland implantation is probable. Inferentially, senile dementia, if taken early, possibly may show beneficial results.

11. The climacteric probably may be postponed, or at least the disagreeable features of the climacteric may be relieved.

12. Defective and aberrant psychic or physical sex development and differentiation—inversions and perversions—are definite indications for sex gland implantation. Certain cases of cryptorchidism and imperfect testicular development are an especially promising field.

13. Certain psychopathies, such as dementia praecox, possibly may be benefited by implantation.

14. Chronic diseases of the skin, due to or modified by nutritional disturbances—notably certain types of chronic eczema, psoriasis and ichthyosis—in a certain

1. Lydston, G. F.: Bull. Chicago Med. Soc., March 7, 1914; New York Med. Jour., March 21, April 4, July 11, Oct. 17, 24, and 31, Nov. 17, 1914, and March 27 and April 3, 1915.

2. In a recent experiment with domestic fowls the male gland seemingly disturbed the normal sex development of the female, notably retarding, possibly preventing, egg production, while apparently increasing general physical development.

3. This is not borne out by my subsequent experience.

proportion of cases are likely to benefited, possibly cured, by sex gland implantation.[4]

15. All conditions incidental to sex gland mutilations in either sex afford a positive indication for sex gland implantation, the probability of benefit being inversely as the length of time that has elapsed since the mutilation, and dependent on the age at which it occurred.

16. In properly selected cases, successful implantation ought inevitably to increase physiologic efficiency with all the benefits accruing therefrom. With increased physiologic efficiency come individual and social efficiency.

17. In general, all morbid conditions in which malnutrition exists are likely to be benefited by the sex hormone, which is a powerful physiologic cell stimulant and nutrient.

As I elsewhere have shown,[5] microscopic sections of implanted glands apparently show regeneration of the circulation and of the interstitial connective tissue which, inferentially, produces the so-called internal secretion. What is true of the sex glands also is true of all other glands which produce hormone. All hormone-producing glands from dead bodies are available sources of material for hormone therapy. Emulsions of glandular organs from dead bodies apparently are available sources of material for hormone therapy. Emulsions of glandular organs from dead human bodies, acting in less degree but in manner similar to implantation, may be of therapeutic value, and possibly superior to so-called extracts and to desiccated substances from the glands of the lower animals.[6]

Fig. 1.—Testis from a body dead ten hours from cocain poisoning, implanted in a case of dementia praecox; *A*, implanted gland. Implantation eleven hours later—twenty-one hours after death. Drawing made six weeks after the implantation. Seven months ater the implantation the implanted testis was a firm, characteristically shaped body about one-half its original size.

In the papers mentioned, I have presented in detail certain features of my experimental work, with additional observations which, I hope, have served to make the work more comprehensive, complete and convincing.

I present herewith brief reports of four additional cases of successful testicle implantations. I will at this time say but little further than I already have said regarding the physiologic and therapeutic effect of sex gland implantation. Suffice it to state that not only have previous observations been verified, but also I have noted certain apparent results which still further confirm my present belief that in the sex gland hormone we have the most powerful cell stimulant, nutrient and regenerator at present available to medical science. I reserve a detailed discussion of the additional apparent evidence until such time as I feel that the facts are established on a reasonably firm basis, free from the suspicion of coincidence or intercurrent factors. Note in this connection the case of double testicular implantation herein reported. This case apparently is conclusive.

Fig. 2.—Double implantation of testes from a dead body in a case of double complete atrophy.

REPORT OF CASES

CASE 1.—The subject was a young man, aged 22, with a neuropathic and psychopathic heredity. There was an obscure history of a head injury four years before, which probably had nothing to do with his psychopathy. Three years prior to the time I first saw him, the patient developed psychopathic symptoms, and the case was diagnosed by competent authority as dementia praecox. In my opinion, the case at the time I first saw it was a typical dementia praecox. As previously reported,[7] the condition was as indicated in Figure 1.

At present, more than fifteen months after the implantation, a nodule of gland tissue about the size of a hazelnut still is perceptible at the site of the implantation. When the case was last reported there had been considerable improvement in the patient's condition. He had ceased his frequent writing of incoherent, rambling dissertations on architecture and kindred topics, and no longer complained of hearing enemies whispering criticisms adverse to him, which symptoms had been very prominent. His mother stated that he was more ambitious and energetic. At present he is attending school and appears to be getting on fairly well with his studies. He is distinctly more vigorous than at any time since his illness began. I, of course, am not prepared to say that the improvement is due to the implantation, or to share in the enthusiasm exhibited by his family. That the improvement may be due to a remission is obvious. I present the case as merely worthy of note.

CASE 2.—This is by far the most remarkable of my entire large series of implantations, and to my mind is as conclusive evidence of the value of the work as a single case possibly could be. It is especially weighty evidence when considered in connection with the apparent results of my other implantation work.

A man, aged 29, sustained an injury to his testes while playing football, twelve years before he consulted me in July, 1915. His right testicle was enormously swollen (probably hematocele) and very painful. When the swelling subsided, the gland had entirely disappeared. The remaining testicle atrophied to a moderate degree. Virility was unimpaired, and the patient married three years later. No children were born of the union.

About two months prior to my examination the patient, without preceding trauma or known infection, suddenly developed pain in the left ileolumbar region, left spermatic cord, and the remaining testicle. The testicle did not swell, but, the patient stated, the veins above it were swollen. The temperature record was not available. There were no urinary symptoms. At the end of three weeks the testicle had completely atrophied, and some weeks later the case was referred to me.

4. Note in this connection a severe case of psoriasis of many years' duration which cleared up completely within two weeks after an implantation.

5. Lydston, G. F.: New York Med. Jour. (Footnote 1).

6. Lydston, G. F.: Experiments with Emulsions of Organs Taken from the Dead Human Body and of Sex Glands from the Lower Animals, Am. Med., December, 1914.

7. This case was reported in full in the New York Medical Journal, April 3, 1915.

On examination, I found a healthy-looking subject, overfat, with moderately feminine secondary sex characteristics. The beard was almost negligible; the mammae moderately large, and the pelvis distinctly broader than the normal masculine type. The patient stated that his physique had shown these peculiarities increasingly since his injury, twelve years before, but that his sexual power had been "satisfactory" until after the loss of the second testicle. During all these years he had not been physically as fit as before, and for about a year he had with difficulty met the physical and mental exigencies of his business, this lack of efficiency having rapidly increased since the loss of the remaining testicle. Since the loss of the second testicle there had been complete impotence.

Examination showed scarcely a vestige of tissue at the end of the spermatic cords—nothing, indeed, that could be accepted as even a remnant of gland tissue. The penis was of only moderate development, with a long prepuce, but otherwise normal.

Aug. 1, 1915, I implanted on this patient both testes taken from a boy of 14, dead of a crushing injury. The subject was just approaching puberty, and not well developed. The testes were removed six hours after death, and kept on ice in sterile salt solution until the operation, thirty-nine hours after the death of the donor. The implantation was made in the scrotal sac on each side, at the normal site of the testes. The glands were implanted entire, the epididymes not being removed. Healing was prompt; there was only 1 degree of transient febrile reaction, and very slight inflammatory swelling about the implanted glands. Five days after the implantation I performed a circumcision. The patient returned home in two weeks. Vigorous and painful erections occurred after the eighth day, and required an ice bag. Successful coitus was practiced three weeks after dismissal from the hospital. At present, seven months after operation, the patient reports that he is perfectly normal, is taking active gymnastic exercise, and has lost nearly 20 pounds of his flabby fat. Erections are vigorous and more frequent than in the average normal subject of similar age. The patient lays especial stress on his mental and physical fitness for business. The implanted testes have atrophied only moderately, and are of relatively fair size and fairly normal consistency. The epididymes are plainly distinguishable. As Dr. William T. Belfield, who courteously examined the case and questioned the patient, remarked, "The testes, while small, are as well developed and apparently as normal as in many perfectly virile men who come under our observation."

Fig. 3.—Experimental implantation of a single testis from a dead body.

Fig. 4.—Experimental implantation of a single testis from a dead body.

In passing I wish to state that, for a while after the implantation, the patient experienced normal orgasms without emission. He stated to Dr. Belfield and myself that after a few weeks he began to have emissions of a considerable amount of fluid, and that these emissions were almost constant. The emitted fluid, while it has not been examined, of course is not testicular secretion—no anastomosis having been done—but comes from the urethra, Cowper's glands, the prostate, and the seminal vesicles. In brief, it probably is composed of all the usual normal elements of the normal semen, save the testicular secretion, of which the spermatozoa are the important element.

For some weeks after the implantation the patient complained of "frightful nervousness." As he described them, his symptoms were not unlike those produced by strychnin and similar spinal excitants. The "nervous" symptoms finally disappeared. I attributed them to the unwonted dose of hormone supplied by the implanted testes, to which the nervous system gradually became accustomed.

A feature of the foregoing case that is worthy of especial comment is the preservation of virility—until the loss of the remaining gland—after the accident of more than twelve years ago, despite the subsequent impairment of development of masculine secondary sex characteristics. It would seem that: 1. A relatively large dose of hormone is necessary to perfect development of secondary sex characteristics. 2. A very small dosage is sufficient to preserve virility. 3. Once virility is established, an extremely small dosage of sex hormone will preserve the psychosexual and physiosexual sex characteristics that are so essential to potency. It has been observed that individuals possessed of exceedingly rudimentary testes often are virile. Indeed, it has been my observation that such persons sometimes are possessed of more than the average degree of virility. I recall several cases of cryptorchidism coming under my observation in which there was a normal degree of virility with complete sterility.

I will not enter here into an exhaustive study of the physiologic and therapeutic suggestions offered by the foregoing case, as they have been comprehensively discussed elsewhere.[5] This much appears evident, namely, that my implantation work has passed the experimental stage. It would require a degree of skepticism which I am free to say does not inspire me at this stage of my work to attribute to psychic impress such results as have been obtained, notably in the case of double implantation herewith recorded.

It will be interesting to note the further progress of the case relative to atrophy of the implanted glands. Thus far there has been less atrophy than in my other cases, in a similar length of time. Possibly the preservation of the epididymis has something to do with this. As to how long the therapeutic results will endure, one cannot predict. Possibly permanently, or at least long after the last vestige of implanted gland tissue has disappeared. I am confident that, as long as even a small portion of the implanted tissue remains, its favorable effects will endure. Even though an occasional repetition of the implantation should prove necessary to maintain the patient's normal sex standard, the result still would be remarkable and the scientific status of the method sustained.

Case 3.—This case was purely experimental, and no exhaustive report will be made at this time. The subject was a healthy professional man, aged 58, who submitted himself to the experiment from purely scientific motives. The companion testis of that used in Case 2 was employed. The implantation was made in the left scrotal sac. The local

result of the implantation was what I now feel justified in calling "typical," save that the subject got about on his feet after twenty-four hours, which resulted in considerable swelling and tenderness of the operated region. When the patient keeps to his bed, the reaction is very slight, compared to the tissue "insult."

In this case there was a rise of temperature of 1 degree, which subsided in twenty-four hours. Seven months after the implantation a nodule about the size of a good-sized grape is still perceptible.

Certain oddities of apparent physiologic effects were noted in this case, which, if sustained by future observation, will be reported.

CASE 4.—A man, aged 60, apparently normal in every respect, submitted to implantation, with the view of increasing physical vigor and endurance in general, and sexual vigor in particular. I secured the necessary material from an apparently healthy lad of 17 years of age, dead twelve hours of crushing injury of the head. Death had occurred about four hours after the injury. The operation was performed shortly after that in Case 2, so that at present, over seven months have elapsed since the implantation. The testes were refrigerated for about forty-eight hours. A single gland, the right, was employed. The epididymis was removed, and numerous areas of the cortex denuded. The implantation was made in the right scrotal sac. The implantation was perfectly successful. There was practically no febrile reaction, and very little swelling at the site of the implantation. No opportunity has presented itself for a review of the case, but the patient writes that he is well satisfied with results, and that there still is "quite a lump" at the site of the implantation.

CONCLUSION

Not only do I feel strengthened in my heretofore published impressions of the value of sex gland implantation, notably in the matter of increasing physical efficiency, and especially physiosexual efficiency, but also I am convinced that, when technic and material are right, and the recipient properly selected, preservation of hormone production by the implanted gland for at least a prolonged period is certain. That permanent physiologic and therapeutic advantageous results are equally certain, I now am strongly inclined to believe. Thus far I have observed no case in which the implanted tissue had completely disappeared, or even practically so, prior to from twelve to eighteen months.

32 North State Street.

INTRAVENOUS INJECTIONS OF SODIUM CITRATE

WITH REFERENCE TO TRANSFUSION

A. L. GARBAT, M.D.
Assistant Pathologist and Adjunct Visiting Physician, German Hospital
NEW YORK

The sodium citrate method of transfusion as developed by Lewisohn and by Weil is gradually being recognized by different observers as a reliable and efficient procedure. Before its adoption can be more universal, two points of prime importance will have to be definitely established:

1. Is the sodium citrate per se harmful? Can it be repeatedly injected?

2. Is the blood when suspended in sodium citrate and transfused still viable and able to functionate?

The last question will be answered by more numerous statistics than at present available. Thus far, most of the reports show encouraging results. From my experience of forty transfusions at the German Hospital, the beneficial effects compare favorably with those obtained by methods in which unmixed blood is used. (A more detailed account will be given in the future.)

As for the first question, Lewisohn found that 1.5 gm. of sodium citrate was a fatal dose for a dog weighing 11 pounds. Fifteen gm. would then be a fatal dose for a patient weighing 110 pounds. The usual quantity employed in transfusions is 2 gm. — 100 c.c. of a 2 per cent. solution of sodium citrate plus 900 c.c. of blood (a 0.2 per cent. solution of sodium citrate). No references to the repeated use of sodium citrate in man are available. Such statistics were furnished by experiments undertaken in connection with the therapeusis of thrombo-angiitis obliterans as started by Dr. Willy Meyer.

Four patients not suffering from any anemia received repeated intravenous injections of a 2 per cent. solution of sodium citrate in distilled water:

CASE 1.—A. S., man, aged 35, weight 125 pounds, received in all 9 gm. of sodium citrate from June 6 to July 28, in seven doses of 50 c.c. (1 gm.) and one dose of 100 c.c. (2 gm.).

CASE 2.—M. F., man, aged 32, weight 135 pounds, received in all 13 gm. from June 16 to August 4 in five doses of 50 c.c. and four doses of 100 c.c.

CASE 3.—J. C., man, aged 42, weight 165 pounds, received in all 12.5 gm. from June 6 to August 25 in seven doses of 50 c.c., two doses of 100 c.c. and one dose of 75 c.c.

CASE 4.—I. F., man, aged 43, weight 190 pounds, received in all 19.5 gm. from June 6 to November 4 in six doses of 50 c.c., six doses of 100 c.c. and one dose of 75 c.c.

By far the majority of the injections were well tolerated and were not followed by any apparent untoward symptoms. After eight of the total forty injections, the patients experienced a slight chill and a rise of temperature of from 1 to 3 degrees, from one to two hours after the treatment. One patient was not more susceptible than another, and the reactions did not come with any particular solution. The examination of the urine showed no evidence of renal irritation.

Thus, it was concluded that sodium citrate per se is not harmful, even if repeatedly injected over a long period of time.

Since these observations, I have employed a 2.5 per cent. stock solution of sodium citrate (100 c.c. plus 900 c.c. of blood, that is, a 0.25 per cent. final solution of sodium citrate) in my transfusions, as I have repeatedly observed that a 0.2 per cent. solution was not sufficient to keep the blood of some donors from clotting. Nothing is more discouraging than to find that the 900 c.c. of blood collected had entirely or partially clotted. Thus far no such accident has been noted when 100 c.c. of a 2.5 per cent. solution of sodium citrate was employed for 900 c.c. of blood.

CONCLUSIONS

1. The sodium citrate method of transfusion is not to be considered in any way dangerous because of the sodium citrate employed.

2. A 0.25 per cent. solution of sodium citrate has been found more reliable in preventing coagulation.

Knowledge Derived from Antiquity.—Every generation enjoys the use of a vast hoard bequeathed to it by antiquity, and transmits that hoard, augmented by fresh acquisitions, to future ages.—Macaulay.

THE TECHNIC AND RESULTS OF THE OPEN METHOD OF OPERATION ON BONES AND JOINTS*

C. HUGH McKENNA, M.D.
Senior Surgeon to St. Joseph's Hospital
CHICAGO

At the International Congress of Medicine held in Budapest in 1909, Sir William Macewen read a paper on "Intra Human Bone Grafting: Reimplantation and Transplantation of Bone." He presented the history of his classical case, in which he had operated thirty years previously, now thirty-six years ago, and had succeeded in reproducing — by the transplantation of small bony fragments of tibiae — practically the normal shaft of the humerus, which had been destroyed by osteomyelitis.

Macewen's work and the publication of his results seem to have marked the beginning of a new era in the surgery of bone lesions. The application of the principles underlying bony development and growth as worked out by him were quickly utilized in the treatment of fractures.

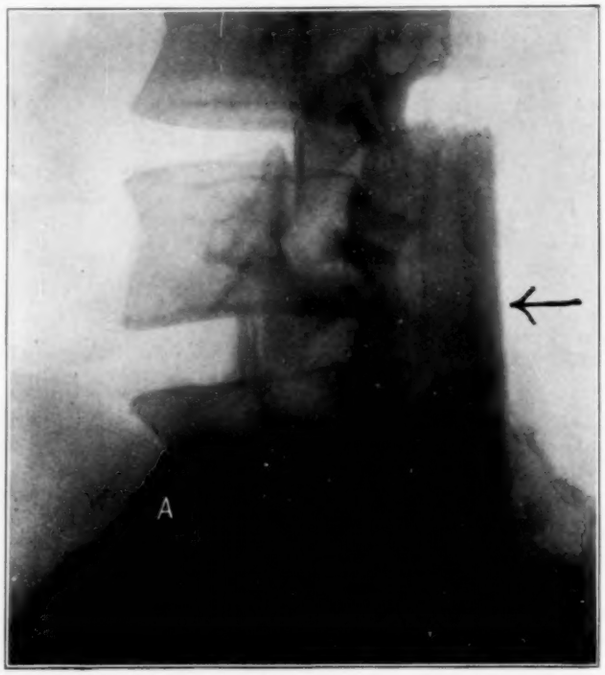


Fig. 1.—Tibial transplant (indicated by arrow) 6 inches long and ¾ inch deep, containing periosteum and through to the endosteum of the marrow grafted into the spine for Pott's disease: *A*, diseased bone. This picture was taken two and a half months after operation, transplant healing in without complication.

While the subject of my paper deals with the general subject of bone surgery, it pays particular attention to the subject of fractures.

Fig. 2.—Fracture of the patella one year after old fracture, at which time it had been taken care of by open operation.

One may rapidly pass over the subject of diagnosis of fractures because of the fact that practically every injury to the body today is subjected to an examination by the Roentgen ray. By this means a precise diagnosis of the type of fracture may be made. Making the picture from various angles enables one to get a correct idea of the position of the bony fragments and the relation which these broken parts bear to the surrounding soft structures.

In all but the cases in which it is obvious from the roentgenograms that open operation is necessary, we usually attempt reduction under anesthesia, giving the patient a chance of reduction by the simple method. In some of our cases we attempted reduction by means of the Roentgen-ray screen, which method — based on my present experience — I should not recommend.

We should lay down a fairly definite line between those cases which should be treated by open operation and those which should not, because of the ease of reduction by the open method and the tendency not to take into account the dangers attendant on the open method. The real danger attending the open operation for the treatment of fractures is the very low resistance which bone offers to infection. Because of either the danger of infection in the open operation or the failure to produce union by the closed method, special methods of treatment have been devised for certain types of fractures. Of special interest in this connection is the form of treatment outlined by Dr. Frederic Cotton of Boston for the reduction of intracapsular fractures of the neck of the femur.

Two cases presented at the Boston City Hospital Clinic by him during the Clinical Congress of North American Surgeons showed ideal results. During the meeting, considerable discussion was aroused by the diversity of opinion expressed by different surgeons regarding the proper position to be taken in the treatment of fractures by the open method — whether reduction was secured by the use of bone transplantation, metallic plates, or nails. Dr. Albee of New York and others believe that this class of surgery should be undertaken only by the specialist and with exact and precise technic: that in order to do the best work possible, the surgeon must be equipped with a

Fig. 3.—Same as Figure 2 two years after second operation, showing complete bony union. The patient asserted that the first operation was performed by the use of catgut sutures only. In the second operation, performed by me, in addition to the use of chromic catgut for bringing the capsule together, a peripatellar bronze wire was used. In the second picture, taken two years after the second operation, the wire, after performing its function, has worked down, owing to the pull of the patellar ligament. The patient has complete function in every respect.

* Owing to lack of space, many of the roentgenograms of other cases have been omitted but will appear in the reprints, which the author will be pleased to send on receipt of a stamped, self-addressed envelope.

Fig. 4.—Intracapsular fracture of the neck of the femur.

Fig. 5.—Reconstruction of the neck of the femur by the use of an ordinary carpenter's nail. This picture shows how perfectly reduction can be made by this method.

very elaborate bone outfit — with the greatest possible refinement in instruments. He places much stress on the use of the twin saws. He believes that the minimum amount of trauma is caused to the transplant by the use of the electric driven saw. On the other hand, Dr. H. Sherman of California thinks that this type of surgery will be practiced generally, that it requires nothing more than a hammer and chisel in the way of special instruments, and that the ordinary surgical technic will fulfil the requirements.

Fig. 6. — Appearance of a fracture six weeks after injury, with nonunion, some shortening, and the skin in bad condition because of the various appliances previously used necessitating a preparation of the skin requiring a period of three weeks, before open operation was performed.

I believe that Albee's opinion is the proper one. Too much stress cannot be placed on the subject of technic, which should be carried out by the method of allowing only instruments to come in contact with the wound. After a fair experience in this line of work for the last seven years, I am firmly convinced that if one could carry out Lane's technic, there would be no infection in uncomplicated open operations for fractures.

One of the phases of the modern technic in the treatment of both recent and old fractures is the ease with which reduction is accomplished by the aid of "human" traction performed by from one to three assistants and a short skid instrument used in the wound. This is a much more intelligent plan of determining the amount of strain that might be placed on nerves and blood vessels; a much simpler plan than that advocated by some surgeons, namely, a complicated and cumbersome traction apparatus as an absolute essential in every case of an old fracture. I have used both methods, and possess one of the simpler types of traction machines, and find its greatest benefit in the aid it gives in the application of the plaster - of - Paris dressing.

With respect to the finer points of technic of this operation, we follow these rules in practically all cases:

Fig. 7.—Lane plates in place two months after operation, with the bone solidly united. Note that the bony implants were used in bridging over a part of the bony defect. The fibula was not disturbed. The plates healed in perfectly. This patient left the hospital eleven weeks after operation with his leg in perfect condition—no shortening and not the slightest deformity.

1. The entire limb is prepared before operation by shaving, and washing with green soap, alcohol and ether. After drying, dry boric powder covered with sterile gauze is applied forty-eight hours preceding the operation. Three coats of iodin are applied to the dry surface just before operation.

The accompanying roentgenograms were taken in the Roentgen-ray department of St. Joseph's Hospital, and were selected from over fifty operations that I performed. Two cases of particular interest were intracapsular fractures of the hip joint, for the reasons I shall presently give.

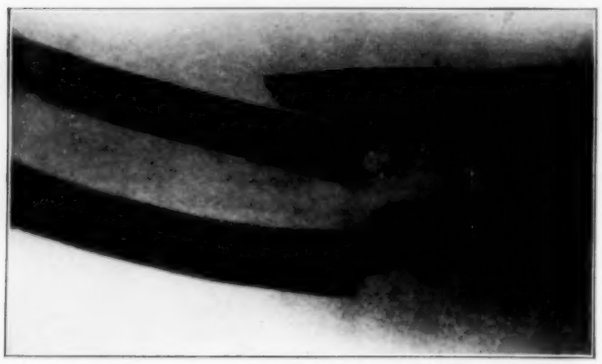


Fig. 8.—An old fracture of both bones of the forearm. The patient came to me three and one-half weeks after the injury. Marked displacement and deformity were shown.

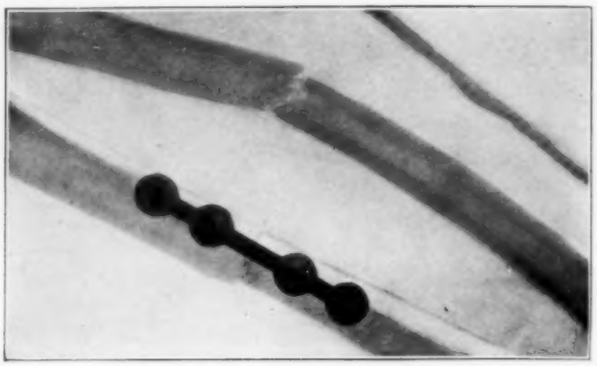


Fig. 9.—Application of a Lane plate to the ulna, the radius not entirely straight, but firmly united, and consequently not disturbed. The patient was discharged with a perfectly good functional result.

2. All material used in the operation, including instruments and sponges, comes directly from the sterilizer, not being touched by the gloved hands of doctors or nurses. Nothing but instruments and sponges are allowed inside the wound.

To those who claim that the intracapsular fracture may be approximated either by nail or by bony peg, without opening the capsule, I would say that in both of these cases the spherical fragment of the head — the anatomic positions of which appeared to show the

Fig. 10.—View of an ununited fracture of the surgical neck of the humerus in a man, aged 64. Patient came into my service five months after accident.

Fig. 11.—Taken ten weeks after operation with tibial transplant 5½ inches in length inserted into the head and shaft by means of the doweling bone instrument. It was necessary to apply a light Lane plate to hold the head from slipping from the shaft. This picture also shows callus formation between the ends of the fragments along the line of the transplant. The patient at this date was able to use his arm quite freely, and had started doing light work at his trade. *A* and *B* denote upper and lower ends of transplant.

3. The skin in all cases is closed with a subcutaneous suture of silkworm gut.

fragments in apposition — presented on opening the joint, the synovial surface of the lateral surface of the head apposing the fracture surface of the distal position of the neck. The fractured surface of the head was rotated 90 degrees from normal, lying in contact with the inner surface of the anterior portion of the joint capsule. The head was turned into its proper relation with the lower fragment only with difficulty.

I believe that the plan of incision used in these cases, which was carefully worked out on the cadaver before the operation, gives the most accessible route to the neck of the femur, particularly when the break is within the capsule. The incision begins at a point 1 inch below and behind the anterior superior spine of the ileum carried back to a point above the posterior to the great trochanter, and then down along the outer surface of the femur.

In these cases there was only one

Fig. 12.—Fracture of the olecranon, two months after operation. Callus formation is complete. The head of the nail has come off. I do not use this type of nail now. I find that the ordinary carpenter's nail is more satisfactory.

been obliged to take off the Lane plates in only two cases. The two hip cases, both of which were of the intracapsular type of fracture, which were placed in excellent anatomic position, resulted only in fibrous union, though healing took place by first intention and without complication. The results in these two cases, and observation in this group of bone lesions, make me a strong believer in the use of the bone graft for this type of fracture. Failure of bony union in these two cases led me to make a fairly extensive review of the literature on the subject of bone transplantation. Experimentation has led to conflicting views pertaining to the influence and fate of bone transplants. Respecting the rôle played by the autogenous bone transplant, over which there is so much discussion today, it would seem that it matters very little clinically whether the transplant is osteogenetic or osteoconductive.

Fig. 13.—Anteroposterior view of the right elbow of a boy, aged 20 years, showing an absence of the carrying angle of the arm. This defect was due to an injury to the internal condyle in infancy, the epiphyseal line being injured so that growth did not take place as rapidly on that side as the opposite, producing the characteristic deformity shown.

Fig. 14.—An osteotomy above the elbow and a correction of the deformity shown in Figure 13, the corrected fragments being held in place by means of a wedge-shaped piece of magnesium plate.

of infection resulting after operation. Whether or not this was hematogenous in origin, I am not prepared to say. However, the patient made a good recovery with no bad effects. Infection occurred in another case of a crushing injury with the comminuted fragments of bone driven practically through the skin. The skin also was badly lacerated. There was some paralysis in this leg. This result should not be charged up to the technic. The majority of patients have been kept under observation for a considerable length of time, some two years or more. I have

Fig. 15.—Same as Figure 14, the arrow showing the magnesium plate holding in place after the callus is well formed.

In 1912, Macewen[1] stated that his experiments seemed to show that periosteum was not a bone-producing tissue, but rather served the function of a limiting membrane. Davis and Hunnicutt,[2] working in the Hunterian Laboratory of Experimental Surgery, Johns Hopkins University, repeated many of Macewen's experiments, and at the same time carried out a number of their own. Their conclusions are practically the same as Macewen's. They recommend the transplanting

1. Macewen: Growth of Bone.
2. Davis and Hunnicutt: Ann. Surg., June, 1915.

of periosteum with the bone graft because they believe that it receives nourishment much more quickly — because of the vascular elements which it contains — thereby not allowing it to undergo absorption so early as the grafts transplanted without periosteum.

Murphy, in 1906, made the statement that the essential factor lies in placing the bone transplant in contact with living osteogenetic centers, and that the question of whether or not the transplant retained its periosteum was a secondary consideration. Irrespective of what present day investigators have brought to light respecting osteogenesis, clinically the application of Murphy's theories has produced splendid results in bone surgery.

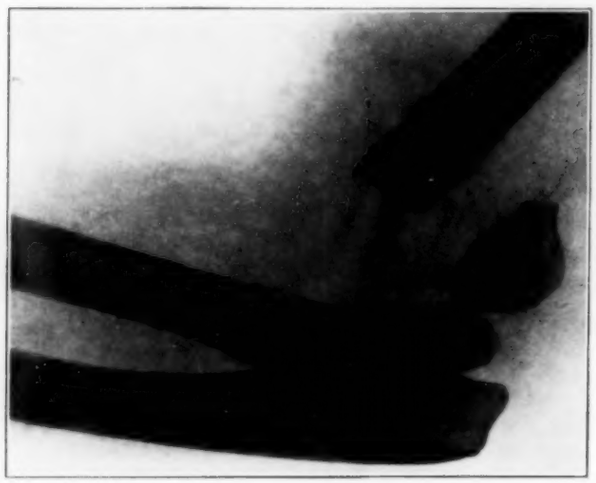


Fig. 16.—Supracondylar fracture in a child with soft tissues interposed between the bony fragments.

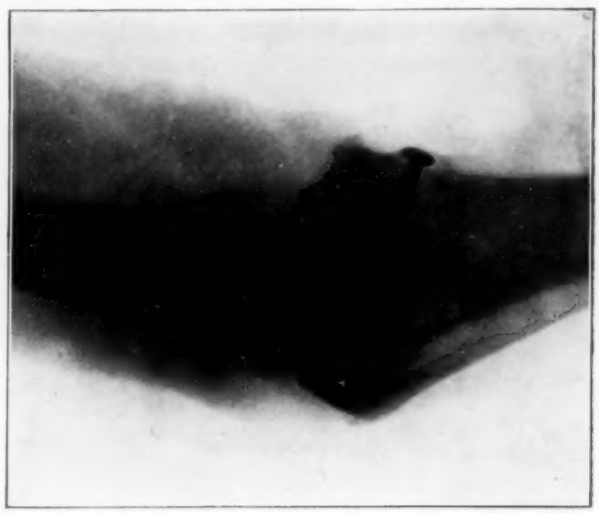


Fig. 17.—Several months after operation, showing union; fragments held in place by a nail.

CONCLUSIONS

1. Open operations in the treatment of fractures should be undertaken only after sufficient Roentgen examinations or surgical consultations, or both, to show conclusively that good results cannot be obtained by the closed method.

2. The lack of resistance to infection inherent in bone tissue requires special technic in the execution of this work not generally required in the ordinary surgical procedure.

Fig. 18.—Separation of the epiphysis of the right radius in a boy, aged 16 years. This injury was of eight months' duration at the time of operation.

Fig. 19.—Employment of any ordinary carpenter's nail to hold fragments in place owing to the contractures due to the length of time bone was unreduced. This picture was taken one year after operation.

3. The introduction of foreign substances, as nails and plates, should be avoided when possible, as these are not conducive to rapid bony repair. In those fractures resulting in marked deformity, however, the correction of which requires more than a temporary immobilizing position, a nail or plate — with or without a bone graft inlay — fulfils the requirement more nearly than any other form of surgical treatment.

4. The bone implant or autotransplant with periosteum intact in indicated cases should be the material of choice for the surgical reconstruction of fractures.

5. The periosteum of the transplant, whether osteogenetic or not, should remain intact in order to protect the nutrition of the graft to the maximum degree.

104 South Michigan Avenue.

Japanese Rural Health Conditions.—The Japan *Advertizer* in January printed a report by Rev. E. K. McCord of Sendai to the annual conference of Federated Missions in Tokyo on rural conditions from their sanitary, social and industrial aspects. This report says that as a preparatory course, leading up to theology and fitting rural minds for its reception, it would be well to preach first "drainology." In the matter of water supply for human consumption and of sewage disposal, or of conditions of light and heat within the home, rural Japan is said to be still largely primitive. But eight villages and only twenty-five cities and large towns have water systems. The supply usually comes from shallow wells, subject to surface contamination during rainy seasons, while in many instances the sole source of supply is the little stream running back of the house, flanked by many compost heaps, which serves for all domestic, including culinary, purposes. It is said there are numerous sanitary organizations within the villages, voluntary or official, but they are generally lacking in initiative and energy to clean out disease breeding conditions. There is, however, in some places inspection of wells and a semiannual house cleaning, which extends to the ditches, and epidemics of infectious diseases are always vigorously fought.

MULTIPLE ACUTE GASTRIC ULCERS AFTER USING PERCY'S "COLD IRON" FOR INOPERABLE CARCINOMA

PRELIMINARY REPORT OF A FATAL CASE *

V. N. LEONARD, M.D.
Resident Gynecologist, Johns Hopkins Hospital
AND
A. B. DAYTON, M.D.
Fellow in Pathology, Johns Hopkins University
BALTIMORE

In this case, rigid application of Percy's "cold iron" was ineffectual in eradicating the carcinoma, and was followed by death after four days with lesions similar to those of extensive cutaneous burns.

History.—Woman, aged 52 (two children) had had no bleeding since the menopause at 42 until November, 1915. Then she had profuse vaginal bleeding for five days which recurred once. Further symptoms were loss of weight, slight pain, constipation and painful defecation.

The general physical examination was negative. Hemoglobin was 56 per cent. Pelvic examination showed the cervix entirely destroyed by a rough, firm growth extending far out into each broad ligament, fixing the uterus firmly in the pelvis.

The clinical diagnosis was inoperable carcinoma of the cervix.

Operation.—The technic most recently advocated by Percy[1] was rigidly followed in every detail. A midline incision showed the uterus firmly fixed to the pelvis and a hard mass 3 by 6 cm. in each broad ligament. There were hydrosalpinx, left, and hydro-ureter, right, diameter 15 mm. The internal iliac arteries and infundibulopelvic ligaments were ligated with silk. The left tube was removed. The vagina was dilated to admit the whole hand, and tissue was removed for section.

A Percy cautery (Point "A") was introduced into the uterine cavity, and heating was continued one hour at a temperature low enough to avoid all charring, and never heating the tissues to a point at which the assistant's gloved (medium weight rubber) hand in the abdomen could not retain hold on the uterus with comfort.

A Percy cautery (Point "E") was then introduced into the middle of the right broad ligament mass, and heating was continued one-half hour under the same conditions. The left broad ligament was treated in exactly the same way for one-half hour. The structures became movable.

On the second, third and fourth days after the operation there was acute gastric dilatation. On the third day there was a urinary fistula, and on the fourth day a paralytic ileus.

During preparation for enterostomy, the patient died suddenly.

Abstract of Protocol.—The peritoneal cavity contained 100 c.c. of serosanguineous fluid with a little fibrinous exudate at the operative site. The intestines were distended. No obstruction could be demonstrated.

The pleural cavities each contained 500 c.c. of bloody fluid. There were a few subserous ecchymoses. Extensive pulmonary edema was present.

The stomach was distended with gas. Its mucosa was perforated by about twenty-four clean, round ulcers which measured from 1 to 7 mm. in diameter. Microscopically the loss of substance extended to the submucosa and was unassociated with any cellular change.

The other viscera showed extreme cloudy swelling, together with renal epithelial necrosis.

The operative site was extensively softened, and much had sloughed away. A vesicovaginal fistula involved the orifice of the right ureter. Grossly and microscopically intact squamous cell carcinoma was found peripheral to large areas of general necrosis. Many mitotic figures were seen. In one area seemingly dead carcinoma was found in the midst of normal looking connective tissue. Examination of the regional lymph glands has revealed no carcinoma.

The small pelvic veins were thrombosed, and an embolus of one of the small pulmonary arteries was found.

The brain has not yet been examined.

CONCLUSIONS

1. In the case reported, prolonged "cooking" of carcinomatous masses resulted in acute systemic effects similar to those following extensive cutaneous burns.
2. Histologic examination of the pelvic tissue shows viable carcinoma four days after thorough application of the "cold iron."

* From the Gynecological Clinic and the Department of Pathology of the Johns Hopkins Hospital.

1. Percy, J. F.: Heat in the Treatment of Carcinoma of the Uterus, Surg., Gynec. and Obst., 1916, xxii, 77.

EARLY DIAGNOSIS OF A CASE OF MYXEDÈME FRUSTE

I. S. WECHSLER, M.D., NEW YORK

Several years ago Hertoghe of Belgium described an incomplete form of myxedema which he called "myxedème fruste." This condition, commonly found among women, is considered by some merely as a temporary or permanent state of thyroid insufficiency, by others as an incipient or abortive form of true myxedema; while Hertoghe looks on it as a clinical entity. A case of this kind recently came under my observation. The early recognition of the condition, the seemingly classical grouping of the signs and symptoms and the very prompt response to treatment, warrant, I believe, a report of the case.

Mrs. L. W., aged 28, came to me, Oct. 1, 1915, complaining of headaches. Inquiry into her family history revealed nothing except that one sister died of tuberculosis. Her past history was negative. Up to the date of her marriage, one year and a half previously, her menses had been regular. Nine months ago she gave birth to a baby, and her menstruation returned within two months, but had become very profuse.

Besides the headaches, for which she came to me, she also complained of a sense of tiredness, which grew worse, almost amounting to fatigue, as the day progressed. The headaches were dull and diffuse. Further inquiry also revealed the fact that for several months past her hands felt particularly dry. Her hair, too, had begun to fall out, particularly when the patient was combing it.

Physical examination showed little. Only one symptom described by Hertoghe was very characteristic. The outer third of the eyebrow was very sparse. The hair of the scalp was rather coarse, and there was also somewhat marked facial hirsuties. The examination of the urine was negative; blood pressure was 120 systolic, 85 diastolic.

The patient was put on 1 grain of thyroid extract three times a day. The baby was weaned. Ten days later the woman reported that her headaches had completely disappeared, there was no longer any sense of tiredness, the hands had ceased to feel dry and the hair stopped coming out. The cure seemed to have been magical. To make sure that the diagnosis of thyroid insufficiency, or the myxedème fruste of Hertoghe, was correct, treatment was stopped. About four weeks thereafter the woman returned, complaining of the same symptoms as on the first visit. She was then once more placed on thyroid extract, and the symptoms vanished as quickly as before. The treatment was kept up for two months, with gradually diminishing doses. Aside from the amelioration of the subjective symptoms, the hair became less coarse, the outer third of the eyebrow grew back, and the menses were no longer profuse. It is now four months since the patient has discontinued taking thyroid, but none of the symptoms have reappeared.

It is quite probable that pregnancy was the etiologic factor in this case.

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THE TESTES AND THE SYMPATHETIC SYSTEM

Removal of the sexual glands produces profound changes in the organism, evidenced as alterations of bodily physique and of temperament. If the extirpation is made at an early period in life, the so-called secondary sexual characters may fail to exhibit themselves in the usual manner, and thus occasion the retention of infantile characteristics in place of typical features of adult form and behavior.[1] There is reason to believe that we may properly speak of "genital hormones" at the present time, in explanation of the undoubted chemical correlation exerted by the genital glands on other parts of the reproductive apparatus as well as on the organism in general. At any rate, the secondary sexual characters must be associated with the influence of chemical substances produced by the ovary and testis, respectively. Castration after puberty cannot modify profoundly the development of structures like the skeleton, which are already completed; but it may unquestionably bring about obvious structural and even functional changes which can be determined by careful observation.

The fact that phenomena of the sort here discussed are actually under the dominance of hormones, rather than the effect of alterations in the nervous communications between the parts of the body concerned, is demonstrable by direct experiment. Frequently the reimplantation of the missing tissue will restore a lost function or induce a return of normal manifestations. This has been seen in the case of the period of "rut," in the female, which has been abolished by extirpation of the ovary and reinduced by implantation in the peritoneum of an ovary from another animal of the same species.

The more intimate nature of the physiologic alterations involved in castration has remained largely a mystery because few detailed observations have been made on the phenomena by the critical methods of modern science. Recent studies have furnished evidence that changes in functional as well as morphologic processes follow the removal of the primary reproductive glands in the male.[2] The circulatory reactions to nicotin, which consist ordinarily in a rise of blood pressure even with very small doses of the drug, are lowered as a result of gonadectomy. Recalling that the specific action of nicotin falls not on the central nervous axis but on the peripheral ganglions of the autonomic nervous system, it seems clear that castration exerts an influence on the sympathetic nervous outfit. Its irritability is decreased, and this may partially account for the changes in disposition in castrated animals. To these facts may now be added the further observation of a more or less complete restoration of the usual response to nicotin in the same (castrated) animals after implants of testicular tissue. The presence of successful testicular grafts in any part of the body seems to result in renewed activity of the vasomotor mechanism. The general level of the blood pressure is raised again. Such phenomena point, in the opinion of Wheelon, to the conclusion that a direct relationship does exist between the internal secretions of the testis and the sympathetic nervous system. Castration seems to result in a depressed activity of the nervous mechanism, while subsequent establishment of the lost parts tends to lift the depression and at least partially to reinstate normal activity.

1. What Determines the Development of the Secondary Sexual Characters? editorial, The Journal A. M. A., Feb. 17, 1912, p. 484; The Modification of Secondary Sexual Characters, Feb. 21, 1914, p. 618.

2. Wheelon, Homer: Extirpation of the Testes and Vasomotor Irritability, Am. Jour. Physiol., 1914, xxxv, 283; Wheelon, Homer, and Shipley, J. L.: The Effects of Testicular Transplants upon Vasomotor Irritability, ibid., 1916, xxxix, 394.

THE VOLUME OF THE BLOOD AND ITS PLASMA

A knowledge of the total volume of the circulating fluid in the body ought to be of considerable value, not only as one of the physiologic constants which science may be expected to establish in relation to the human organism, but also because of the important part which it may play in certain pathologic considerations. An appreciation of the absolute quantity of the blood has a bearing on the interpretation of such conditions as anemia and diseases of the heart. The possible part played by undue blood volume in cases of arterial hypertension at once suggests itself, for one naturally asks whether or not an increase in the blood mass with overfilling of the vascular system is in any way responsible for the condition. Enlarged hearts also raise the question as to the possible relation of an exceptionally large blood volume to the genesis of a situation sometimes marked by myocardial insufficiency.

The most prominent routine methods of ascertaining vascular conditions consist in determining the number of red cells or ascertaining the oxygen carrying power as gaged by the content of hemoglobin. These procedures give no evidence regarding the total blood volume concerned in the performances of the organism, since they measure concentration rather than absolute

values. Determinations of the blood volume of the body go back to the days of Haller. The figures most widely quoted in earlier days were derived by Welcker's method, which necessitated an analysis of the entire body and was therefore merely of indirect experimental value. The familiar figure giving the total amount of circulating fluid in man as equivalent to one thirteenth of the weight of the body was based on two observations made by Welcker's method long ago on executed criminals. Haldane subsequently introduced an ingenious method which permitted the determination of the total volume in the living individual. The statistics obtained by this as well as by the comparable procedure of Plesch show a decidedly smaller blood volume. The variations in the individual estimations are considerable, ranging from one sixteenth to one thirtieth of the body weight, with a general average of about one nineteenth.

The total number of analyses of blood volume on record are small at most. The methods referred to have many inherent difficulties, require complicated apparatus and involve injury or discomfort for the subject. We must, therefore, welcome the recent additions to the subject made in the medical and urologic clinics of the Johns Hopkins Hospital by Keith, Rowntree and Geraghty.[1] The principle underlying their newer method is the introduction directly into the circulation of a nontoxic, slowly absorbable dye, which remains in the plasma long enough for thorough mixing, and the determination of its concentration in the plasma colorimetrically by comparison with a suitable standard mixture of dye and serum. The dye which fulfils such conditions is vital red (disodium disulphonaphthol azotetramethyl triphenyl methane), which is practically nontoxic in doses of 3 milligrams per kilogram of body weight. The fate of the dye in the body has not all been determined; it leaves the blood vessels so slowly, owing to its nondiffusibility and comparative indestructibility, that considerable amounts can still be found in the plasma three or four days following its injection. The estimations of the blood or plasma volumes are easily made within six minutes of the time of the simple injection by venipuncture. Repeated determinations on the same individual yield practically identical results, provided no appreciable change in the subject's condition has occurred, thus attesting the efficiency of the method from the standpoint of uniformity.

The blood values obtained by the Baltimore investigators on normal individuals are somewhat at variance with the variable blood-body mass relationship reported by Haldane. They support the earlier figures. Some of the facts reported are as follows: The average blood volume was 5,350 c.c., or approximately 85 c.c. per kilogram. On a gravimetric basis, the blood constituted 8.8 per cent., or one eleventh of the body weight. The variations in health were not great — from one thirteenth to one tenth of the body weight. There appear to be no great extremes in the relation of plasma to body weight in health. A normal man of 140 pounds has 3 liters of plasma, or 50 c.c. per kilogram, the extremes being from 42 to 56 c.c. The normal distribution values of the blood components, obtained by the hematocrit method, were approximately 43 per cent. for erythrocytes and 57 per cent. for plasma.

The fact that this method of determining the blood volume yields greater values than have generally been found by the Haldane method might suggest that some of the injected dyestuff is bound somewhere by fixed tissues. And the fact that there is a greater constancy in the values obtained on a normal individual than there is with the Haldane method does not absolutely dispose of this possibility; it does show, however, that if there is any absorption by fixed tissues, the factor of such absorption must be quite uniform. Therefore, while there may remain a slight possibility that determinations of the absolute volume of blood yield results a little too high, the serviceability of the method for determinations of the comparative volumes of the blood in the different conditions that these investigators have studied hardly comes in question.

Enough facts are now available through the use of the new and ingenious method to show that changes in blood volume are insignificant in experimentally induced hypertension and hypotension, and cannot be brought into causal relationship with them. It is possible to find the statement that the total blood volume is altered by the height of the blood pressure as well as by the oxygen tension of the air breathed.[2] The new investigations on patients with hypertension and chronic nephritis show that the blood volume is normal and frequently low. True plethora is not present in hypertension; one must conclude, therefore, that a small and contracted vascular system and not an increased blood mass is responsible for the increased blood pressure.

Among other observations of interest brought out by the first applications of the new method is the fact that in pregnancy, before term, the blood and plasma volumes are increased. A condition of serous plethora exists. Within a week or two after delivery the blood values return to normal. Keith, Rowntree and Geraghty[1] recall that these findings confirm the belief widespread among obstetricians that pregnant women stand hemorrhage unusually well. Comparatively very large bleedings in eclampsia are well borne. It would appear, they add, that Nature has here a factor of safety, the large blood volume safeguarding against the effects of hemorrhage before, during and after labor. Or it may be that the larger blood supply is nec-

1. Keith, N. M.; Rowntree, L. G., and Geraghty, J. T.: A Method for the Determination of Plasma and Blood Volume, Arch. Int. Med., October, 1915, p. 547.

2. Starling, E. G.: Human Physiology, 1915, p. 857.

essary for proper nutrition of the child. In obesity the plasma and blood volumes are relatively small. Many patients with anemia exhibit a relatively large plasma volume. It is shown that a high blood count may sometimes be dependent on a low plasma value; sometimes the plasma volume is large so that a true blood plethora is indicated. In anasarca accompanying myocardial insufficiency, the blood volume may be absolutely increased.

The introduction of a useful clinical method of the sort which has been discussed here will supplement in an admirable way the current estimations of the blood cells and respiratory pigment, hemoglobin. The effects of hemorrhage or infusion can be directly determined in all of their relationships. The variations in the mass of the blood in disease or in therapeutic procedures can now be ascertained directly in man and taken into consideration in a rational way.

CLOTHING AND HEALTH OF INFANTS

The recommendation of hygienic clothing for adults is difficult because of the twofold function of dress in grown individuals. The purpose of clothing is primarily to insulate the body against cold and to maintain a constant body temperature. Clothing further serves as a protection against external objects; but from time immemorial decoration has been one of the most significant and directive influences in the selection of body coverings. It has been remarked that pride should not be the only source of warmth; and that although persons cannot easily overlook or neglect the dictates of custom and fashion, the selection of clothing should be based as largely as possible on occupation, conditions of health, and the requirements of age. Precisely as clothing in winter should prevent an undue loss of heat from the skin, so in summer it should not interfere with the dissipation of heat.

Infants, it might naturally be expected, would be clothed with a maximum regard for physiologic propriety and a minimum consideration for conflicting fashions. The demands for freakish dress are certainly less likely to pertain to the period of infant life, during which one may reasonably expect clothing to be hygienic if not artistic. The admonition to conserve the heat of the young is freely given, in view of the fact that heat is easily dissipated through thin textiles and scant clothing with which the young are sometimes provided without realization of the harm to which their frail bodies are thereby exposed. The contrary danger of heat stasis in infants as the result of improper clothing during periods of high external temperature and humidity is less well recognized. At any rate it received little scientific attention prior to the studies of McClure and Sauer at the Otho S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital in Chicago. They showed that in animals, coverings may so seriously interfere with the loss of body heat at moderately high temperatures as to cause death.[1] In the case of clothed infants, the determining factor in the rate of heat loss by conduction and radiation is the difference between the surface temperature of the clothes and the temperature of the surrounding air; in the case of the unclothed infant it is the difference between the air and the surface temperature of the skin. A series of readings made on infants wearing ordinary hospital clothing showed that when the room temperature reached about 31 C. (87.8 F.) the temperature at the surface of the clothes was so nearly the same that heat loss by conduction and radiation no longer remained possible. The skin surface of the unclothed infant, however, still showed sufficient excess to facilitate a loss of heat in the same environment.

Data such as these point out clearly the danger limits of undue clothing of infants in hot surroundings. They deserve emphasis because in the absence of the power of speech in early life the health and comfort of children are dependent in no small measure on the intelligent procedure of those in whose care the young are entrusted. Clothing may be a menace as well as a blessing. One reason for this has become apparent from these new researches.

THE GASTRIC MOVEMENTS IN PYLORIC STENOSIS

Clinical observations have furnished evidence that in cases of pyloric obstruction an alteration of the usual movements of the stomach may occur. Distention of this organ commonly attends pyloric stenosis, and hypermotility has repeatedly been described as accompanying it. Most of the facts on record have been obtained under conditions in which the stomach was more or less filled with food or otherwise distended, as it frequently is when the pyloric functions are interfered with. The question quite naturally follows as to whether these alterations in motor activity are attributable to the presence of food in the obstructed organ and whether the distention is a factor in the altered muscular performance, or whether the latter is a direct consequence of the pathologic condition involved.

Carlson[2] has shown that the "pangs of hunger" are associated with and probably due to rhythmic contractions of the stomach wall, which come on about meal time, especially if this be delayed. This phenomenon has often been recorded by the modern graphic methods of physiology, in both man and animals, so that the type and character of the hunger contractions

1. McClure, W. B., and Sauer, L. W.: Clothing as a Factor in the Production of Heat Stasis, Am. Jour. Dis. Child., June, 1915, p. 490; The Influence of Clothing on the Surface Temperature of Infants, December, 1915, p. 425.

2. New Facts About Hunger, editorial, The Journal A. M. A., July 11, 1914, p. 169.

of the stomach are now well known. By producing a surgical stenosis of the pylorus in animals, Elsesser,[3] working in Carlson's laboratory at the University of Chicago, has been able to test the question of altered motility and tonicity in the empty stomach. Even under this condition, hypertonicity and hypermotility are in evidence. The latter is exemplified in an increase in the amplitude of the various "hunger contractions"; and the hypertonicity appears in periods of gastric tetanus prolonged beyond the normal, as well as an increase in the strength of the tonic contractions. These motor phenomena closely simulate those seen in man, with a filled stomach, in the presence of pathologic lesions of the pylorus.

It is thus clear, as Elsesser points out, that partial stenosis of the pylorus induces a neuromuscular hyperactivity, as exemplified in hypermotility, irrespective of the presence of food in the stomach cavity. Hypermotility may often be seen temporarily during ordinary gastric digestion, in the presence of food and a temporary retardation of its passage through the pylorus. But the fact that the hypermotility can now be shown to be present even in the empty stomach indicates that the motor changes following mere mechanical obstruction of the pylorus are fundamental and important.

The mechanism of this increased motility can as yet only be conjectured. In any event it is not due to bacterial toxins from local foci of infection, because of the precautions taken to avoid them in the experimentally produced stenosis. In a very limited number of observations at the Presbyterian Hospital, Chicago, on infants with congenital pyloric stenosis and pylorospasm, Carlson and Ginsburg[4] have likewise shown a condition of hypertonus and hypermotility in the empty stomach. Ordinarily the sensation of hunger runs parallel to the vigor of stomach motility in the normal person. With hypermotility and hypertonicity it might be expected that the subject would experience more persistent and vigorous hunger pangs. As this is apparently not the case in stenosis of the pylorus, it is assumed that there are changes in the sensory nervous mechanism of the stomach coincident with the motor and secretory changes.

3. Elsesser, O. J.: Contribution to the Physiology of the Stomach, XXXI, The Effect of Experimental Partial Stenosis of the Pylorus on the Motility of the Empty Stomach, Am. Jour. Physiol., 1916, xxxix, 303.

4. Carlson, A. J., and Ginsburg, H.: Contributions to the Physiology of the Stomach, XXX, The Tonus and Contractions of the Empty Stomach of Infants with Congenital Pyloric Stenosis, Pylorospasm and Chronic Vomiting (Merycism), Am. Jour. Physiol., 1916, xxxix, 310.

Differentiation of B. Typhosus, B. Paratyphosus (A) and B. Paratyphosus (B).—In citrate broth to which human blood has been added (2 c.c. blood in each 10 c.c. of medium) the para-A bacillus does not cause coagulation. Whenever a clot is formed as the result of the growth of a bacillus of this group it is always either Eberth's bacillus or the para-B. In litmus-citrate broth para-A produces a rose-violet tint, while the other members of the group give *finally*, a blue color.—A. Lebœuf, J. Boumafous and P. Braun in *Compt. rend. Soc. de biol.*, 1915, lxxviii, p. 665.

Current Comment

ATMOSPHERIC TEMPERATURE AND IMMUNITY REACTIONS

As an incident in research to determine the unhygienic factors in the atmospheric environment of man, the New York State Commission on Ventilation has investigated the effect of high atmospheric temperatures on immunity reactions.[1] The temperature of poorly ventilated establishments has already been demonstrated to be a prominent agency in determining the malaise experienced in such surroundings by many persons. The details still remain to be ascertained, though many significant facts have already been determined. There is considerable evidence that, in animals at least, the progress of an infection already established is in greater or less degree checked by an artificial fever due to extremely high atmospheric temperature. It is not unlikely, however, that a moderate amount of heat may produce a different result from temperatures so severe as to lead to a condition of fever in the subjects. Accordingly, the commission has dealt with the problem by comparing the immunity reaction of experimental animals to injections of washed erythrocytes, when the subjects were kept in an environment recording from 29 to 32 C. (84.2 to 89.6 F.), in contrast with room temperatures of from 18 to 21 C. (64.4 to 69.8 F.). The results appear to indicate a distinct decrease in the rate of hemolysin formation on the part of the heated animals. The influence of heat appears to show itself in a delayed formation of hemolysins rather than in a permanent inhibition. The New York observers admit that the wide variations exhibited in individual animals preclude the possibility of drawing definite and final conclusions from these results. Their general tendency, as evidenced by averages, agrees with the results of other observers, and they strongly suggest that moderately high air temperatures (30 C., 86 F.) do not favor the development of immune bodies in the blood as higher temperatures producing a condition of fever have been reported to do. On the other hand, they may be distinctly inimical to such development.

THE INHERITANCE OF CONGENITAL PTOSIS OF THE EYELID

As a result of the growing interest and research in the science of genetics, attention has been focused from new points of view on the problems of heredity. At first it was chiefly in the domain of agriculture, in the breeding of plants and animals, that the facts of inheritance were analyzed from the standpoint of mendelian principles. There is increasing evidence, however, that the facts of heredity in man are also amenable to the same scientific treatment. With respect to certain qualities, at least, the older idea that the offspring may be regarded as a sort of arithmetical mean of both of its parents can no longer be maintained. Frequently the quality is transmitted from parents to

1. Winslow, C.-E. A.; Miller, J. A., and Noble, W. C.: The Effect of Moderately High Atmospheric Temperatures upon the Formation of Hemolysins, Proc. Soc. Exper. Biol. and Med., 1916, xiii, 93.

child either completely or not at all. The doctrine of dominant and recessive characters, as they are commonly termed in the discussions on heredity, has found numerous applications in the history of individual families, and has played a significant part in the theories of eugenics. Out of the statistics and observations which are now being collected on an extensive scale to illustrate all manner of features of inheritance, it is possible to select many examples of the transmission of both anatomic and physiologic defects in man. Thus among functional disorders alcaptonuria and cystinuria appear to occur most commonly where there is blood relationship. Congenital deformities such as polydactylism are probably the most familiar of the inherited defects which show transmission according to definite laws of heredity. An illustration of how such peculiarities are being brought to light incidentally is furnished by the chance discovery of four generations of "slit-eyed" persons in northern Georgia by the horticulturist of the Georgia Experiment Station.[1] Congenital ptosis of the upper eyelid is, of course, no novelty in ophthalmologic experience. This peculiar trait, which causes the persons involved to throw their heads back or turn them to one side in order to get clear vision, makes them conspicuous wherever they appear. The interest in the Georgia records lies in the long succession of cases of direct relationship. They include, among the actually known descendants exhibiting the lid defect, three great-grandchildren, six grandchildren, a son and his father. Among the children involved are both boys and girls, so that the defect involving the musculature of the upper eyelid cannot be regarded as sex-linked in its inheritance, as are color blindness and one form of night blindness. One cannot build hypotheses from a paucity of data; nevertheless the history here quoted might give rise to a suspicion that the trait is what students of heredity term a simple mendelian recessive. On this tentative basis, current theories would suggest either the absence of the factor for the normal development of the lid muscle or the presence of an inhibitor of normal development.

OVERACTIVITY IN ATHLETIC SPORTS

In a recent survey[2] of the physiologic aspects of sport in ancient and modern times it is stated that:

> The Greeks lifted their sports to a higher level than ours by surrounding them with imagination and making them a training in esthetics as well as in physical excellence. The American idea is too closely connected with the mere wish to win and the performance of mere "stunts," and not enough with the idea of beauty of physique and control of the body. There is accumulating considerable evidence that college athletics often seriously injure those who engage in them, although they were originated and encouraged for precisely the opposite effect. The value of exercise consists not in developing large muscles nor in accomplishing athletic feats, but in attaining physical poise, symmetry of form, and the harmonious adjustment of the various parts of the body, as well as in furthering the proper activity of cell tissues and organs and the elimination of waste products.

This conclusion is quite in accord with the considerations of this subject that have repeatedly appeared in THE JOURNAL. The problem of how to deal with the situation of athletic sports in our educational institutions, particularly the strenuously competitive sports like football and rowing, deserves far more serious study than it has ever received. Opinions must be fortified by statistics as to the actual health of college athletes in their after-life and the possible correlation of bodily ills or defects with undesirable athletic activities. Mortality or morbidity statistics are not yet sufficiently abundant to merit dependence on them, especially in view of the manifold agencies for harm that play on the individual. The persons engaged in the furtherance of athletic sports are, in the main, so enthusiastic about the promotion of physical well-being by the collegiate games that their statements often smack of prejudice. Critical statements and warning evidence on the other side of the question must actually be sought out if they are to enter into the controversy regarding the value of competitive sports. In view of this, a statement of the director[3] of the Yale University gymnasium, who could scarcely be suspected of being an antagonist of athletics, merits special emphasis:

> If I were asked to give an opinion, not based on statistics but on observation, as to the danger which is now present or threatened, I have no hesitation in saying that they [athletics] are too strenuous; the athlete is pushed beyond the limits of safety, he is sacrificed to win games, and the influence of such overactivity has reached the boys in the preparatory schools where it continues to develop harm.

THE NATURE OF ADIPOCERE

Adipocere, or corpse wax, is a product formed particularly in bodies or parts of bodies which have been buried in moist places or have been in contact with water for some time. The muscles and other non-skeletal structures are apparently replaced by a substance of a waxy or fatlike character. The results of the examination of many specimens of such adipocere indicate that it is composed largely of higher fatty acids, along with magnesium, calcium and ammonium soaps of palmitic and stearic acids. Voit pointed to the formation of adipocere in the protoplasmic tissues as an illustration of the long debated formation of fats directly from proteins, but his view has been generally abandoned. It is now usually contended that through the agency of bacteria as well as tissue fat-splitting enzymes, or lipases, body fats are split into their component fatty acids and glycerol. The olein, which is always abundantly present admixed in tissue fat and is liquid at ordinary temperatures, is known to decompose in the genesis of adipocere with the formation of solid fatty acids. That adipocere occurs almost exclusively in fat bodies lends decided support to the probability that all the soaps and fatty acids found in it are formed from the original fats of the corpse. Wells[4] states that as the subcutaneous fat is hardened by the formation of soaps, and the bones

1. Stuckey, H. P.: The Slit-Eyed People, Jour. Heredity, April, 1916, p. 147.
2. Fisher, Irving, and Fisk, E. G.: How to Live, New York, 1915, p. 96.
3. Anderson, W. G.: Further Studies in the Longevity of Yale Athletes, Med. Times, March, 1916.
4. Wells, H. G.: Chemical Pathology, 1907, p. 342.

remain to hold the parts in position, the general form of the body is preserved, creating the impression that its entire substance has been converted into adipocere, when the total mass may actually weigh only 20 pounds or so, and, according to Zillner's estimate, not more than one tenth of the muscle substance is replaced by adipocere. This false impression is perhaps responsible for the mistaken idea concerning the conversion of muscle proteins into fatty acids. An exceptionally comprehensive chemical examination of the composition of adipocere, lately made at McGill University by Ruttan and Marshall,[5] gives even better insight than did the earlier investigations into the make-up and presumptive origin of the unique product. In the specimen examined, the fatty acids and traces of fats, etc., soluble in ether constituted 94 per cent. of the adipocere. Only traces of nitrogen were present. The Canadian biochemists, therefore, feel justified in concluding that adipocere is the residue of the preexisting fats of animals. It is composed almost entirely of the insoluble fatty acids left after the slow hydrolysis of the fats in wet ground. The protein matter has entirely disappeared, and the glycerol, soaps, etc., resulting from the hydrolysis, are carried away in aqueous solution. The insoluble hydroxystearic acids which are so characteristic of adipocere are derived from a portion of the oleic acid in the original fat by hydration. No margaric acid or hydroxymargaric acid is present. Ammonium and other soluble soaps are absent, and only the calcium salts are present in small quantity in a matured specimen of adipocere, such as that reported on.

MUSCLE WASTING IN NERVE LESIONS

The rapid loss in muscle substance, following injuries to the motor nerves supplying the muscles, has been a matter of common observation for many years. Whether the atrophy in these cases has been due to inactivity of the limb, resulting from a paralysis, or to the cutting off of a hypothetic trophic influence said to be exerted by the nerve on the muscle, has not, as yet, been finally determined. Experimental evidence[6] seems now available with regard to the state of the muscle fibers during the period of paralysis, and the rate at which the denervated muscles undergo atrophy. Further enlightenment on the vexed question of the efficacy of electric treatment of paralyzed members is also produced by this work. Langley and Kato cut the tibial nerve in one of the legs of rabbits. The weight of the gastrocnemius, soleus and plantaris muscles was determined in the animals thus operated on, at periods varying from one to thirty-five days, in both the operated and unoperated legs. By comparing the weights of these muscle groups in the two legs, it was possible to determine with considerable accuracy the percentage of loss of muscle substance. Within five weeks after the injury, the muscles lose about a half of their weight. During the first two weeks the loss amounts to nearly 30 per cent. The authors make the interesting observation that the muscle fibers of the denervated muscle are not quiescent, but, contrary to previous assumptions, are in a state of active fibrillar contraction. By thus demonstrating the existence of a weak, rapid, rhythmic contraction of the muscle fibers, which goes on incessantly, the view that the atrophy of paralyzed limbs is due to inactivity is deprived of whatever support it may have had. Important evidence is given also as to the efficacy of certain therapeutic measures which have long been employed in the treatment of infantile paralysis and the paralysis resulting from other lower motor neuron lesions. The authors attempted to determine the relative efficacy of massage, passive movement of the limb, and electric treatment of the denervated muscle group. Again operating on rabbits, they performed a series of experiments in which the tibial nerves in both legs were cut. In different animals, one leg was treated by massage, or passive movement, or electricity, while the other leg was not treated. It was thus possible to determine the difference in weight between the two atrophying muscle groups, one of which was being treated, while the other was untreated. The results show that the loss of weight with massage was 37.8 per cent., while the loss of weight in the nonmassaged muscle group was 41 per cent. Passive movements of flexion and extension gave a loss of 12.3 per cent. in the treated leg, as against 16.4 per cent. in the untreated leg. The electric treatment was most efficient. The stimulus consisted in condenser shocks of from 0.016 to 0.025 microfarads. The treated muscles showed a loss of weight of 12.9 per cent., while those untreated gave a loss of 18.5 per cent. in the same time. Aside from the clinical observations of neurologists, these experiments furnish the first definite proof of the efficacy of electric treatment, in muscles which are undergoing atrophy. Orthopedic surgeons have long been skeptical of the use of electricity in nerve lesions. The neurologists, on the other hand, have been zealous advocates of its use. Conclusive evidence by appeal to experiment has at last been adduced. It should be noted that no form of treatment prevented the fibrillar contractions of the paralyzed muscles, nor did it change the sluggish contraction which is typical of muscles in which the nerve has degenerated.

5. Ruttan, R. F., and Marshall, M. J.: Jour. Biol. Chem., March, 1916; Proc. Soc. Biol. Chem., p. xii.

6. Langley, J. N., and Kato, T.: The Rate of Loss of Weight in Skeletal Muscles after Nerve Section, with Some Observations of the Effect of Stimulation and Other Treatment, Jour. Physiol., 1915, xlix, 432.

Red Cross Work in the Ladrones.—Prompt action taken by the American Red Cross in 1915, in response to an appeal transmitted by the Navy Department, kept from starvation a number of destitute persons on the Island of Rota in the Ladrones Group in the Pacific. On receipt of the appeal the American Red Cross, through the cooperation of the Navy Department, authorized by cable the loading of relief stores on the U. S. S. *Supply* at Manila, this vessel being ordered to stop at Rota and discharge the food sent by the Red Cross. After taking this action, the American Red Cross notified the Japanesse Red Cross of the receipt of the appeal and thus the conditions in Rota were brought to the attention of the Japanese government. Through the American Ambassador at Tokyo, Japan, the government sent the American Red Cross a draft covering the original expense in Rota, together with thanks for the action taken.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

State Association Meeting.—The twenty-fifth annual meeting of the Arizona Medical Association was held in Phoenix, April 26 and 27, under the presidency of Dr. John W. Flinn, Prescott. The following officers were elected: president, Dr. Robert Ferguson, Bisbee; vice presidents, Drs. W. Warner Watkins, Phoenix; Arthur C. Carlson, Jerome, and Frederick T. Wright, Douglas; secretary, Dr. Clarence E. Yount, Prescott (reelected); treasurer, Dr. Roderick D. Kennedy, Globe, and delegate to the American Medical Association, Dr. John J. McLoone, Phoenix. On the Monday preceding the session the State Health Officers' Association met, and on Tuesday the meeting of the State Association for the Study and Prevention of Tuberculosis was held.

CALIFORNIA

Medical Library Donated.—The medical library of the late Dr. Warren Vernon Grimes, Pacific Grove, has been donated by his widow to the Lane Medical Library, San Francisco.

Personal.—Drs. H. Bert Ellis, Los Angeles; Oliver D. Hamlin, Oakland; Victor G. Vecki, San Francisco, and Henry P. Newman, San Diego, were elected delegates to the American Medical Association at the annual meeting of the Medical Society of the State of California.——Dr. Frederick P. Gay, Berkeley, professor of pathology in the University of California, is on sabbatical leave for six months.——Dr. Shadworth O. Beasley, San Francisco, has returned after several months' service in Serbia.

Summer Graduate Medical Course at Stanford.—The trustees and medical faculty of Stanford University have issued the annual announcements of the summer graduate course, which will begin July 6 and close August 15. Instruction will be given in San Francisco in the Medical School Building at Sacramento and Webster Streets; the Lane Hospital at Clay and Webster Streets; the San Francisco Hospital at Twenty-Second Street and Potrero Avenue; and the Isolation Hospital at Army and DeHaro Streets. The course of instruction includes clinical medicine, clinical pathology, actinography, clinical neurology, dermatology and syphilis, pediatrics, serology, clinical surgery, operative surgery, anatomy, orthopedic surgery, clinical ophthalmology, the eye and general medicine, principles and practice of refraction, otology and laryngology, genito-urinary surgery, gynecology, practical obstetrics, cystoscopy, anesthesia and pathology.

CONNECTICUT

Personal.—Dr. John Gilman, Stanton, New London, has been appointed, by Governor Holcomb, a member of the State Board of Education of Connecticut.

State Society to Meet.—The Connecticut State Medical Society will hold its one hundred and twenty-fourth annual meeting at Bridgeport, May 17 and 18, under the presidency of Dr. Max Mailhouse, New Haven, with headquarters at the Hotel Stratfield. The annual banquet will be held May 18 and a smoker on the evening of May 17. The subject of the president's address is to be "Some Defects and Inconsistencies in Medical Statutes and Medicolegal Procedures."

ILLINOIS

Governor at Charity Ball for Hospital.—Governor Dunne led the grand march at the formal opening of the charity ball at Pana for the benefit of the new Huber Memorial Hospital, April 24. Preceding the ball a banquet was held at which the governor delivered an address on behalf of the hospital.

Central Illinois Physicians Elect.—The forty-third annual meeting of the District Medical Society of Central Illinois was held in Pana, April 25, and the following officers were elected: president, Dr. William G. Turney, Cowden; vice presidents, Drs. Herbert C. Jones, Decatur; Oliver L. Crow, Assumption; secretary, Dr. Louis H. Miller, Pana, and treasurer, Dr. Grover C. Bullington, Nokomis.

State Society Meeting.—The sixty-sixth annual meeting of the Illinois State Medical Society will be held in Champaign, May 16 to 18, under the presidency of Dr. Charles W. Lillie, East St. Louis. The oration in surgery will be delivered by Dr. B. Merrill Ricketts, Cincinnati, on "Anesthesia From the Dawn and Its Relation to Surgery," and the oration in medicine by Lieut.-Col. William B. Banister, M. C., U. S. Army, Chicago, on "The Medical Mechanism of War in the United States." The pulpits of Champaign and Urbana will be occupied by Chicago physicians on the Sunday preceding the meeting.

Personal.—Dr. H. Douglas Singer, director of the State Psychopathic Institute, Kankakee, spoke before the Pittsburgh Neurological Society, May 4, on "Dynamic Psychology and the Practice of Medicine."——Dr. F. J. Haessler was elected president of the Chicago Heights Country Club, May 3.——Dr. Walter E. Scarborough, Sullivan, formerly coroner of Moultrie County, has accepted a position as surgeon with the Canadian troops.——Dr. Eugen Cohn, assistant superintendent of the Kankakee State Hospital and recently transferred to the Chicago State Hospital, was the guest of honor at a dinner tendered him by the staffs of the Kankakee State Hospital and Psychopathic Institute, April 27.

Chicago

Ricketts Prize Awarded.—The Howard Taylor Ricketts prize for research work done by students in the Departments of Pathology and Bacteriology of the University of Chicago, which is awarded each year on May 3, the anniversary of Dr. Ricketts' death from typhus fever, has this year been awarded to Oscar J. Elsesser.

Personal.—Dr. Walter A. Gekler has assumed the position of medical director of the Municipal Tuberculosis Sanatorium, succeeding Dr. John W. Coon.——Dr. Harry A. Salzman has given up private practice to accept a position as surgeon in the United States Coast and Geodetic Survey at Manila, P. I.——Dr. Alexander S. Rochester has returned from Los Angeles and associated himself for a second time with Dr. Casey A. Wood. He has also been appointed assistant ophthalmologist and otologist to St. Luke's Hospital.

Hospital Semicentennial.—On May 9 to 11 the ceremonies celebrating the fiftieth anniversary of the founding of the Alexian Brothers' Hospital were held. Since the foundation of the hospital by Brother Bonaventure Thelen in 1866, more than 100,000 patients have been treated in the hospital. The anniversary commenced with pontifical high mass conducted by the Archbishop of Chicago and, in connection with the ceremonies, several of the brothers were especially honored. A large hospital fund is being raised in connection with the jubilee and the hospital will be opened to friends and supporters of the institution and to the public at large.

Chicago Men Address Societies.—Dr. William Healy of the Cook County Psychopathic Institute delivered an address before the Chamber of Commerce of Des Moines, May 3, and in the afternoon delivered a public lecture under the auspices of the Chamber of Commerce, the City Federation of Teachers and the Board of Education.——Dr. John S. Nagel made an address before the Livingston County Medical Society at Pontiac, May 4, on "The Senile Prostate," and Dr. Paul Gronnerud, an address on "Hysterectomy."——Dr. James B. Herrick will deliver an address at the annual graduating exercises of the Rockford Hospital Training School for Nurses, June 2.——Dr. George F. Suker spoke on "The Eye Symptoms in Disease of the Hypophysis" from the standpoint of the general practitioner, and Dr. Frank E. Simpson delivered an address on "Radium in the Treatment of Cancer and Various Diseases of the Skin," before the Linn County Medical Society at Cedar Rapids, April 26.——Dr. Charles A. Elliott spoke before the Sangamon County Medical Society at Springfield, April 24, on "Gastric Secretions, Motility, Technic and Value of the Fractional Test Meal."

LOUISIANA

New Parish Society Organized.—A meeting of physicians of Jefferson Parish and vicinity was held at the home of Dr. M. Earle Brown, Gretna, at which the Jefferson Parish Medical Society was organized.

Personal.—Dr. Frank H. Walke has been appointed president of the Shreveport Board of Health, succeeding Dr. G. C. Chandler.——Dr. Richard F. Harrell, Alexandria, has removed to Shreveport with offices in the First National Bank Building.——Dr. Barbour D. Cooper, Mansfield, was recently operated on for appendicitis at Mansfield Sanitarium.

Hospital for Consumptives.—An advisory committee consisting of Drs. Rudolph Matas, Solon G. Wilson, John B.

Elliott, Jr., Joseph A. Danna, Luther Sexton, Charles J. Landfried, and William M. Lynch has been appointed by the Board of Administration of the John Dibert Memorial Hospital for Consumptives. The work of this committee is to gather such data as is necessary to guide the board in the preparation of plans, and to hasten the construction work of the hospital. Mrs. Dibert has already given the city a check for $50,000, and will soon turn over to the city the remainder of the donation of $200,000.

State Society Meeting.—The thirty-seventh annual meeting of the Louisiana State Medical Society was held in New Orleans, April 25 to 27, under the presidency of Dr. James C. Willis, Shreveport. The following officers were elected: president, Dr. William H. Seemann, New Orleans; vice presidents, Drs. Thomas S. Jones, Baton Rouge; Charles V. Unsworth, New Orleans and Jacob M. Bodenheimer, Shreveport; secretary-treasurer, Dr. Laurence R. DeBuys, New Orleans (reelected); councilors, first district, Dr. Wilkes H. Knolle, New Orleans; second district, Dr. Homer J. Dupuy, Jr., New Orleans; third district, Dr. Beverly W. Smith, Franklin; fourth district, Dr. Joseph E. Knighton, Shreveport; fifth district, Dr. Courtland P. Gray, Monroe; sixth district, Dr. James J. Roberts, Baton Rouge; seventh district, Dr. E. M. Ellis, Crowley, and eighth district, Dr. E. Lee Henry, Lecompte. Nominations for State Board of Medical Examiners: Drs. Edmund L. Leckert and James A. Henderson, both of New Orleans, and delegate to the American Medical Association, Dr. William H. Seemann, New Orleans. Alexandria was selected as the next place of meeting.

MARYLAND

Higher Entrance Standard.—The Faculty of Physic of the University of Maryland, School of Medicine, and College of Physicians and Surgeons of Baltimore announces that beginning with Jan. 1, 1918, two years of premedical work of college grade will be required for admission.

Honor to Winslow.—Physicians of Baltimore and other cities united in paying tribute to Dr. Randolph Winslow, May 8, at a testimonial dinner given at the Hotel Belvidere in honor of the completion of his twenty-fifth year as a member of the faculty of the University of Maryland. Dr. William P. Stubbs was chairman of the committee of arrangements.

Gift to Johns Hopkins Hospital.—A gift of $150,000 has been made to the Johns Hopkins Hospital by the will of Miss Jessie Gillender, who died in February, at Los Angeles. A part of the money is to be used in scientific research into the cause, prevention and cure of epilepsy. It is thought that this laboratory will be connected with the Henry Phipps Psychiatric Clinic. This gift opens a new field for research work at the institution.

Personal.—Dr. Playford L. Rush, an intern of the University Hospital, underwent operation during the past week for appendicitis.——Dr. Frederick N. Tannar recently underwent an operation for appendicitis at the Franklin Square Hospital and is reported as doing favorably.——Dr. Robert J. Henry of Glyndon has been reappointed a justice of the Peace of Baltimore County.——Dr. Joseph S. Baldwin, Elko, is reported to be critically ill with malignant disease at Johns Hopkins Hospital.——Dr. Henry O. Reik, delivered an illustrated lecture on "Our National Parks in Their True Colors" at the Peabody Institute, April 25.——Dr. Edward N. Brush, Towson, who was operated on for appendicitis, April 25, is reported to be securely convalescent.

Campaign to Make City Clean and Sanitary.—A committee appointed by the mayor to conduct a campaign against rats, flies, mosquitoes, and dirt of all kinds, also insanitary conditions generally, held its first meeting, May 4. The committee is composed of Dr. John D. Blake, commissioner of health; Dr. W. T. Howard, Jr., assistant commissioner of health; W. A. Larkins, commissioner of street cleaning, and other city officials. The movement was formally launched at a public meeting, May 12, when addresses were made by Surg.-Gen. Rupert Blue, U. S. P. H. S.; Dr. William H. Welch of Johns Hopkins, and the mayor. They will explain the necessity of a general clean-up. John F. Aubrey, who is taking a special course in biology and chemistry at the Johns Hopkins University, will have charge of the mosquito crusade and will enter actively on his duties as supervisor of the antimosquito forces on June 1. For this crusade alone $30,000 has been appropriated. The department has already done considerable preliminary work to eliminate the mosquito.

University of Maryland Faculty Matters.—The first step toward the admission of women as students on an equal footing with men or on any footing in the medical department of the University of Maryland was taken, May 5, when their admission was recommended at a meeting of the medical faculty. Action was deferred until the meeting in June. Many of the professors are in favor of the movement, and it stands an excellent chance of being made a part of the policy of the department in the near future.——Another step decided on at the meeting of the faculty was that the senior class beginning next session will be divided into trimesters, instead of the usual semesters and the students will be required to spend one third of their time in the University Hospital, one third in the Mercy Hospital and one third in the Maryland General Hospital. While at the University Hospital, the senior students will live in the hospital itself and be assistants in clinical work.——Dr. James M. H. Rowland was elected dean to suceed Dr. William F. Lockwood, resigned. Dr. Randolph Winslow was elected president of the faculty, Dr. John W. Chambers, vice president, and Dr. William S. Gardner, secretary. Dr. William Simon resigned as professor of chemistry. Dr. Henry J. Walton was recommended to succeed the late Dr. Henry Chandlee as head of the Roentgen-ray department. Dr. Robert P. Bay was recommended for clinical professor of surgery and surgeon at the University Hospital. Dr. Page Edmonds was recommended as professor of clinical neurology and as surgeon to the University Hospital. Action on the recommendations will be taken also at the next meeting, but ratification is assured.

MASSACHUSETTS

Quiet Zone Ordinance.—Subject to the approval of the mayor, the Boston city council on April 17 made it a punishable offense to make unnecessary noise near a hospital and also established zones of quiet around hospitals, including the placing of signs reading "Warning! Hospital—Make No Noise."

State Medical Society Meeting.—The one hundred and thirty-fifth anniversary meeting of the Massachusetts Medical Society will be held, June 6 and 7, at the Copley-Plaza Hotel, Boston, and at the Peter Bent Brigham Hospital, under the presidency of Dr. Charles F. Witherington, Boston. The Shattuck lecture will be delivered on the evening of June 6 by Dr. Theodore C. Janeway, Baltimore, on "The Etiology of Diseases of the Circulatory System." The annual dinner will be served on June 7.

Personal.—Dr. Vincent Y. Bowditch was reelected president of the Massachusetts Antituberculosis League at its second annual meeting, April 27. Drs. Walter P. Bowers, John H. Gifford, Allan J. McLaughlin and George L. Schmidt were elected vice presidents.——A new hospital has been provided at a cost of $25,500 on the grounds of the Boston City Hospital for Dr. John J. Dowling, the superintendent.——Dr. H. S. Halloway, Boston, has been appointed state bacteriologist of Alabama, succeeding Dr. Moss, resigned.

NEW YORK

Higher Entrance Requirement.—An official communication states that the New York University has authorized the medical department to increase its requirement for admission to two years of college work beginning with the session of 1918-1919.

Social Science Society Organized.—The Albany Social Science Society was organized in March by a group of city and county officials called together by the commissioner of charities, Mr. Alwin C. Quentel, and of this society, Dr. Clinton P. McCord was elected president.

State Society Meeting.—The one hundred and tenth annual meeting of the Medical Society of the State of New York will be held in Saratoga Springs, May 16 to 18, under the presidency of Dr. W. Stanton Gleason, Newburgh, with headquarters at the United States Hotel.

Personal.—Mr. Paul E. Batzell, secretary of the Buffalo Association for the Relief and Control of Tuberculosis, has resigned to accept a position in New York. Dr. John H. Pryor has been elected a director of the association.——Dr. Arthur Eisbein has been appointed city diagnostician of Buffalo, succeeding Dr. Charles S. Meahl, deceased.

County Tuberculosis Hospitals.—*Health News* for April is characterized as the County Tuberculosis Hospital Number and is largely devoted to a consideration of the provisions

now made and those that should be made for the care of those suffering from tuberculosis. On the first of January of the present year, eighteen of the fifty-seven counties in the state had free beds available for the treatment of tuberculosis. The total number of beds available in the eighteen counties is 1,478. In the five counties of Greater New York, with a population practically the same as the fifty-seven counties, there are 4,000 free beds. The city has been able to lower its death rate from tuberculosis 2.4 times as rapidly as has the remainder of the state with a service furnished to but one half of its people.

Authority of Boards of Health Threatened.—A bill known as the Simpson bill passed the legislature and is now before the governor for action. It amends the Public Service Law so as to vest the power to regulate the number of passengers to be carried in street cars solely with the Public Service Commission. This amendment provides that "Nothing contained in the public health law or in any other statute, either general or local, shall hereafter be construed to authorize any local board or department of health or other local authority of a city to make or enforce ordinances, rules, regulations, or orders limiting or regulating the number of passengers to be carried on any such car or cars." The intent and purpose of this bill is not to vest more power with the Public Service Commission but to nullify the authority of the Board of Health of New York City which about a year and a half ago passed an ordinance limiting the number of passengers to be carried in street cars.

New York City

Beriberi.—The four-masted schooner *Tifton* arrived at New York, April 27, from Liberia, after a voyage of eighty-three days, with most of the crew incapacitated by reason of beriberi.

Conference of Charities and Correction.—The seventh annual local conference of charities and correction will be held in New York, May 25 to 27, at which the subjects for discussion will be "Public Health"; "Education"; "Families"; "Municipal Needs"; "Children," and "Delinquency."

Harvard Professor at Academy.—At the meeting of the New York Academy of Medicine, May 4, Dr. Walter B. Cannon, George Higginson professor of physiology in Harvard Medical School, delivered an address on "An Explanation of Some Disorders Supposed to Have an Emotional Origin." The discussion was opened by Henry Rutgers Marshall, L.H.D., D.S.

To Care for Health of Club Women.—At the biennial convention of the General Federation of Womens Clubs to be held in New York, May 23 to June 2, an emergency staff of 100 women physicians and as many nurses has been selected which will be under the charge of Dr. Rosalie S. Morton. Two stations will be open at all hours at the Seventh Regiment Armory and other stations will be maintained at the Hotel Astor and other hotels.

United Hospitals Fund.—The United Hospitals Fund, formerly known as the Hospital Saturday and Sunday Association, has just distributed the contributions for the year 1915, amounting to $110,000, among the various hospitals of the city. This is the largest amount that the association has ever distributed in a single year. The distribution is based on the amount of free work done by the various hospitals. Mount Sinai Hospital received the largest sum, $8,745, and New York and St. Luke's hospitals were close seconds.

Personal.—Dr. William H. Steers of Brooklyn has been appointed a major in the medical corps of the New York National Guard.——Dr. Ramon Guiteras gave a lecture illustrated with French war views at his residence on the afternoon of May 2.——Dr. Charles E. Low of the Rockefeller Sanitary Commission has been appointed director of public health for the city of Spartanburg, S. C.——Dr. William B. Giles, who has recently returned from France, gave a demonstration at Durham, N. C., April 20, on "The Method Used in Locating Bullets in Wounded Soldiers in the Hospitals of France."

NORTH CAROLINA

New Building for State Hospital.—At the annual session of the board of directors of the State Hospital for Insane at Morganton, April 6, building plans for a new woman's building, to accommodate 100 patients, were approved and the structure will be built immediately.

Sanatorium Site Donated.—Mrs. D. B. Safford, Hot Springs, has donated to the Southern Sociologic Congress 700 acres of land near Asheville, as a site for a great sanatorium for the treatment of tuberculosis. She also presents $20,000 in cash as a nucleus to start a fund for the construction of buildings and the securing of equipment.

Sanatorium Building Opened.—The state board of health has accepted the new building at Sanitarium, and it was recently opened to patients. The structure is of brick and cement, fireproof construction throughout, with wide verandas; through the door of each room patient's beds are easily rolled through the wide corridors, or directly outside, where most of the day may be spent on the spacious porch. Between each two rooms is a large bathroom with ample bathroom facilities, including a shower bath in each room. The authorities, as well as the architect are much pleased with the new building. With the crowded state of the institution, and the waiting list, the sanatorium is again full.

OHIO

Battlefield Surgery Demonstrated.—At the Protestant Hospital, Columbus, on May 3, surgical work as performed on the battlefield was demonstrated before the Second Field Hospital and Second Ambulance Company, Ohio National Guard, and officers and men of the line, by Maj. Harry H. Snively, Columbus, who was in charge of a Red Cross hospital in Russia, and Dr. John W. Means.

Personal.—Dr. Charles W. Wendelker has been elected secretary-treasurer of the Portsmouth Antituberculosis League.——At a meeting of the Springfield Hospital Board, April 27, the present staff was reappointed and Dr. William A. M. Hadley was appointed a member of the staff in the eye, ear and nose department.——Dr. Florus F. Lawrence, Columbus, has been invited to become senior surgeon of a French military hospital near Verdun.

Reorganization of Faculty.—The board of trustees of the Ohio State University announced, May 2, an outline of the next year's plans of operation under the new dean, Dr. Eugene F. McCampbell. All clinical work is hereafter to be confined to the Protestant and St. Francis' hospitals and the work of the college is to be organized under nine department heads instead of twenty-six as heretofore. Dr. Clyde Brooks of the University of Pittsburgh is to be head of the department of physiology, physiologic chemistry and pharmacology. Under the reorganization about fifty local physicians and surgeons, who have been giving gratuitous service to the university, will leave the faculty.

State Medical Society Meeting.—The Ohio State Medical Association will hold its seventy-ninth annual session at Cleveland, May 17 to 19, with headquarters at the Hotel Statler, under the presidency of Dr. William E. Lower, Cleveland. At the annual banquet of the association on the second day, instead of the usual afterdinner toasts, Mr. John Kendrick Bangs is to be the attraction and will speak on "Some Salubrities I Have Known." P. A. Surg. Wade H. Frost, U. S. P. H. S., will read a paper on "The Relation of Stream Pollution and Public Health" which will be the initial report on the survey of the Ohio Valley which is being made by the Public Health Service and the health authorities of the state.

Cincinnati

Personal.—The names of Dr. Julien E. Benjamin, Walter H. Stix and Rufus Southward have been submitted to Safety Director Friedlander, who will select one of the three as a successor of Dr. Louis G. Heyn.——Dr. Benjamin K. Rachford was the guest of honor at a luncheon given by the clinical committee of the Child Welfare Section of Kosmos at Chattanooga, April 18.——Dr. Clarence W. Betzner has been made assistant receving physician of the General Hospital, succeeding Dr. Max Shawecker.——Dr. Frank M. Coppock, Jr., has resigned as a member of the resident staff of the General Hospital.

Assets of Medical Department.—Dr. Frank B. Cross, secretary of the faculty of the Medical Department of the University of Cincinnati, in his report to the State Medical Board, says that the value of the new buildings to be finished December 1 of this year is $325,000; the medical grounds are valued at $60,000, and the equipment at $150,000. The pathologic institute is valued at $190,000, and its equipment at $71,285. The value of the present Ohio-Miami Medical building, the clinic building and equipment is $71,439.81. The various funds, bequests and gifts total $528,700, and the total valuation of buildings, equipment and endowment is $1,346,404.

PENNSYLVANIA

First Aid Corps at Capitol.—A First Aid Corps of more than one hundred has been organized among the employees of the state department of health at the state capitol, Harrisburg, by Commissioner of Health Dixon.——Orders have been issued by Dr. Dixon for the instruction in first aid of the nursing staffs of the 115 state tuberculosis dispensaries, and classes have also been organized at the state sanatoriums at Mt. Alto, Cresson and Hamburg.

Mellon Lecture.—The second Mellon Lecture, under the auspices of the Biological Society for Medical Research of the University of Pittsburgh, will be delivered by Prof. Theobald Smith of the Rockefeller Institute for Medical Research, Princeton, N. J., at the Mellon Institute for Industrial Research, Pittsburgh, May 17, at 8:15 p. m. The subject of the address will be "Certain Aspects of Natural and Acquired Resistance to Tuberculosis and Their Bearing on Preventive Measures."

Philadelphia

Work of Women's Committee at Blockley.—The women's advisory committee to the department of health and charities appointed by Dr. Ziegler and retained by the present health director, Dr. Krusen, with the latter's cooperation, has been greatly improving conditions at the Philadelphia General Hospital.

Donations to Retreat.—The Preston Retreat some time ago made an appeal for funds in the city papers and recently received a check for $5,000 from a donor who desires that the money be used for the purpose of establishing a perpetual bed in memory of Mrs. T. Morris Perot, one of the most active friends of the institution. In addition to this gift, a landscape gardener of Narberth has sent fifty trees to be planted in the grounds surrounding the hospital.

Personal.—Dr. John B. Deaver was the guest of honor, April 26, at the banquet and meeting of the Chicago Medical Society.——Dr. Wilmer Krusen, director of public health and charities, was the guest of honor at a reception, April 28, given at the Bellevue-Stratford by the Medical Club of Philadelphia. Dr. Krusen was introduced by Dr. Judson Daland, president of the Medical Club of Philadelphia.——Dr. E. Kilburne Tullidge, who recently returned from service as captain surgeon in the Austrian army, delivered an address before the Southeastern chapter of the American Red Cross, April 27.

Need for Women Physicians in China.—Dr. Shi-Ma-Lei, president of the Women's Christian Temperance Union of China, and head of the Mission Hospital, Qkiu Kaing, delivered an address at the Arch Street Methodist-Episcopal Church, April 27, under the auspices of the Women's Medical College of Pennsylvania, in which she described the great need for women physicians in China. During the last year, the hospital with which she is connected handled 24,484 cases. There is a special need for women physicians because of the prejudice the Chinese women have against treatment by male physicians.

Physicians Wanted for Service in China.—An appeal was made to the medical fraternity of Philadelphia at the College of Physicians, May 5, to supply at once fifty physicians and surgeons for service in China. The appeal was made by Prof. W. H. Welch of Johns Hopkins University, a member of the Chinese Medical Board and Dr. H. J. Howard, connected with the Canton, China, Hospital. Both speakers emphasized the urgent need for a large number of American medical men to handle 5,000,000 cases of trachoma, cataract and other eye diseases prevailing among the Chinese, and it was announced that the Carnegie fund would soon endow two new hospitals, one at Pekin and the other at Canton.

VIRGINIA

Medical Society Organized.—The Hopewell Medical Society was organized, April 26, with the following officers: president, Dr. James H. Hargrave, Jr., City Point; vice president, Dr. Thomas F. Gill, Marshall, and secretary-treasurer, Dr. Benjamin L. Naiman.

Hospital Notes.—A new hospital was opened, April 17, in the DuPont plant, Hopewell, for the treatment of contagious diseases.——The American Locomotive Company has filed plans for the erection of a two story brick emergency hospital within the enclosure of their plant on Hospital and Seventh streets, Richmond, at a cost of $6,500.

Sanatorium Plans.—The state board of health has selected the Norfolk and Western demonstration farm at Ivor, Southampton County, as the site for the tuberculosis sanatorium for colored people. The institution will be known as the Ivor Farm Sanatorium. It is on the main line of the Norfolk and Western Railroad, and contains 226 acres of improved land, with a number of buildings.

Personal.—Dr. Charles R. Robins of the staff of the Virginia Hospital, Richmond, has announced that he will not be a candidate for reelection.——Dr. T. Edwin Baird, Norfolk, has been reappointed quarantine officer for the District of Elizabeth River for two years.——Dr. Edward L. Flanagan has been appointed whole time health officer for Greenville County.——Dr. Stuart McGuire, dean of the Medical College of Virginia, Richmond, was the principal speaker at the anniversary meeting of the William Edgar Marshall Medical Society of the Wake Forest, N. C., Medical School, April 6, and his topic was "The Discoveries That Have Put the Medical Profession on Its Present Basis."

Faculty Changes.—Dr. Robert C. Bryan, Richmond, has been elected professor of genito-urinary surgery in the Medical College of Virginia, succeeding Dr. Lewis C. Bosher, resigned.——Dr. Bryan sailed for France, April 29, for three months' service at Mrs. Harry Payne Whitney's American Hospital, Jouilly.——Dr. Frederick M. Hanes, professor of pharmacology and therapeutics, has resigned and will take up professional work at Winston-Salem.——Dr. Charles C. Haskell has been appointed professor of pharmacology, and Dr. James M. Hutcheson, professor of therapeutics.——Dr. Alfred L. Gray, professor of physiology, has been transferred to the chair of roentgenology and has been succeeded by Dr. Charles H. Lewis.——Dr. E. Guy Hopkins has been elected president of clinical pathology.

CANADA

Academy Meeting.—At the annual meeting of the Academy of Medicine, Toronto, May 4, the following officers were elected: president, Dr. Herbert A. Bruce; vice president, Dr. John Ferguson; secretary, Dr. Jabez H. Elliott, and treasurer, Dr. William A. Young.

Health Officers' Conference.—The fifth annual conference of the health officers of Ontario will be held in Toronto, May 30 and 31. Among those who are to take part in the program are: Dr. William H. Park, director of laboratories, New York, and T. Chalkley Hatton, chief engineer, sewerage commission, Milwaukee.

Personal.—Lieut.-Col. Nasmith, Ph.D., C. M. G., chief of laboratories, department of health, Toronto, analyst and sanitary officer to the first Canadian Overseas Force, will have conferred on him, by the University of Toronto, the degree of LL.D., at convocation, May 19. It will be conferred *in absentia*, as Colonel Nasmith is at present in France.——Lieut.-Col. Samuel Hanford McKee, Montreal; Lieut.-Col. Frederick Etherington, Kingston, and Maj. Evans Greenwood Davis, London, Ont., Canadian Medical Service, have been created Companions of St. Michael and St. George by King George.——Lieut. Normal S. Shenstone, Toronto, has received the appointment of assistant to Lieut.-Col. Irving H. Cameron, chief of the surgical staff of the Ontario Military Hospital, Orpington, Kent, England.

The Cubicle System.—The first annual report of the Infants' Department of the Hospital for Sick Children, Toronto, deals with the cubicle system organized in the hospital, July 1, 1914. At that time a new wing was completed with accommodation for sixty-five children under 2 years of age, and admitting all diseases of infancy excepting infectious diseases. Opening off the main corridor are glass cubicles, each accommodating two or three infants, and four large cubicles holding from six to eight children each. There is a hot room, or premature cubicle, for those too delicate to keep up their body temperature. There is also a chemical laboratory established through the generosity of a woman of Toronto. The department of infant welfare work is made the clearing house for baby welfare work for the city department of health. Scientific research is conducted in connection with the laboratories of the University of Toronto. The great majority of the cases treated are digestive. Fourteen cases of pyloric obstruction, or stenosis, have been treated with but four deaths. During the first year there were 710 cases, comprising fifty-four different diseases of childhood, with a total mortality of 40.07 per cent. When it is considered that 26 per cent. of these died in the first twenty-four hours and 33 per cent. in the first forty-eight hours after admission, the mortality is very low. The lowest mortality occurred in July and the highest in September.

GENERAL

House Passes Leprosarium Bill.—The House of Representatives, on May 5, passed house bill No. 103, an act to provide for the care and treatment of persons afflicted with leprosy and to prevent the spread of leprosy in the United States, in which it asks the concurrence of the Senate.

Plea for a National Leprosarium.—Senator Ransdell of Louisiana has sent a personal letter to every senator and representative urging them to support pending legislation providing for the establishment of a national lepers' home. The bill has been favorably reported by the Senate Committee on Public Health and National Quarantine, and is now on the Senate calendar.

Discontinuance of Guarantee Labels Postponed.—The Department of Agriculture has postponed to May 1, 1918, the date for the discontinuance of the use of the guarantee legend under the Food and Drugs Act of June 30, 1906. The postponement is made, however, only in favor of labels printed prior to May 5, 1914, when the regulations prohibiting the use of the guarantee legend were promulgated.

Indian Service Men Meet.—At the annual meeting of the trustees of the reorganized Association of the United States Indian Medical Service, the following officers were elected: president, Dr. Ralph H. Ross, Wahpeton, N. D., especial physician; vice president, Dr. Eugene W. Hill, Desmet, Idaho; secretary, Dr. Roger V. Parlett, Whiteriver, Ariz., and treasurer, Dr. Fred W. Shaw, Crozier, N. M.

Wine of Cardui Suit.—In addition to the witnesses reported in THE JOURNAL for May 6, 1916, p. 1476, the following have testified up to the time of going to press: Dr. Frank Billings, Chicago; Dr. H. L. Appleton, Gadsden, Ala.; Dr. J. W. Fennell, Landersville, Ala.; Dr. William O. Krohn, Chicago; Dr. R. L. Thomas, Cincinnati; Mr. J. E. Keeton, Tuscumbia, Ala.; Dr. W. Henry Greer, New Decatur, Ala.; Dr. Edmund W. Simmons, Summerville, S. C.; Dr. J. J. Vance, Marvel, Ala., and Dr. Torald Sollmann, Cleveland.

Railway Surgeons Elect Officers.—At the annual meeting of the Association of Railroad Chief Surgeons, held in Chicago, May 1 and 2, the following officers were elected: president, Dr. Oscar LeSeure, Michigan Central Railroad, Detroit; vice president, Dr. Daniel Z. Dunott, Western Maryland Railroad, Baltimore; secretary-treasurer, Dr. Louis J. Mitchell, Chicago (reelected). Dr. John P. Caster, Topeka, retiring president, in his address recommended the physical examination of all applicants for employment on railways as a means to promote safety of operation.

National Conference of Charities.—The National Conference of Charities and Correction will hold its annual meeting in Indianapolis, May 10 to 17. This conference will discuss such important subjects as: the police as a social force; state and municipal farm colonies for criminals; civic efforts in small communities; industrial hygiene; the relation of ill-health to crime, insanity and poverty; the Gary school plan and other matters bearing on the social efficiency of the public schools; the modern problem of alcoholism; unemployment and "Uplift" programs as they appear to the outsider.

Report of Health Officer of the Port of New York.—The recent report of the health officer of the port of New York for 1915 carries the report of the death of its author, Dr. Joseph J. O'Connell, on Jan. 1, 1916. A portrait of the late health officer is printed as a frontispiece and there is an eloquent tribute to his memory from the pen of the department secretary, Mr. John A. Heffernan.

Apart from the usual contents of the report, containing valuable information, there are published a number of important articles on questions more or less directly related to the work of the department, for example, a study of the relation of anaphylaxis to nephritis and one on the action of sodium iodoxybenzoate in promoting the production of agglutinins.

Bequests and Donations.—The following bequests and donations have recently been announced:

Episcopal Hospital, Philadelphia, $50,000, by the will of Marie S. Wilson.

New York Skin and Cancer Hospital, and New York Association for Improving the Condition of the Poor, each $50,000; the Home for Incurables, New York Institute for the Blind, and Hahnemann Hospital, each $25,000; and St. Luke's Hospital, New York, a share in the residue of her estate, by the will of Miss Martha H. Andrews.

Presbyterian Hospital, New York, $25,000, by the will of Mrs. Caroline A. Wilson.

For the establishment of a city hospital at Marshall, Mo., $100,000, by the will of John Fitzgibbons.

Presbyterian Hospital, Chicago, the income of $12,000, for the maintenance of a room for young girls; Chicago Visiting Nurses, $10,000, and United Charities of Chicago, $5,000, by the will of Mrs. Elia M. Walker.

Canadian Red Cross fund, more than $14,000, the proceeds of a concert held at the Auditorium, Chicago, April 29.

Auburn, N. Y., City Hospital, $20,000, by the will of Caroline Willard.

St. Luke's Hospital, New York, $100,000, by the will of Mrs. Ellen Stebbins Curtis James.

Assistant Epidemiologist Wanted.—The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist, for men only. The position pays a salary of from $2,000 to $2,500 per annum, and vacancies will be filled from the eligible list. Graduation from medical school or college of recognized standing, or graduation in sanitary engineering from a college or university of recognized standing, and at least three years' experience in epidemiologic work and experience in laboratory technic, especially in regard to typhoid fever, are prerequisites for this examination. Applicants must be between the ages of 23 and 40, and must be citizens of the United States. Those who desire to take this examination should apply for Form 304 and special form to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local United States Civil Service Board.——The commission also announces an open competitive examination for medical intern at the Government Hospital for the Insane, Washington, D. C., for men and women, the examination to be held June 7. The position pays $900 per annum and maintenance, and is tenable for one year. Applicants must be unmarried, more than 20 years of age, and citizens of the United States. They must be graduates of reputable medical colleges or senior students in such institutions, and those who meet these requirements and desire to take this examination should apply for Form 1312, stating the title of the examination desired, to the United States Civil Service Commission, Washington, D. C., or the secretary of the local United States Civil Service Board.

Standardization of Milk and Milk Products.—Representatives of creamery interests throughout the United States, and the food commissioners of several states, conferred with representatives of the Bureau of Animal Industry, Department of Agriculture, at Washington, D. C., May 4, with reference to the publication of the results of certain investigations that that bureau had made into the condition of a considerable number of creameries. A progress report was made while the investigation was under way, which on its face showed very unsatisfactory conditions in the creameries visited; and this report, it was said, had been seized on by the oleomargarin interests for the exploitation of their own wares at the expense of creamery products generally. On behalf of the creamery men it was contended that the report conveyed an erroneous impression, prejudicial to them, and it was urged that action be taken to counteract the alleged harm and to prevent the issue hereafter of harmful reports, unless well founded. No definite conclusion or plan of action was formulated. On the two days following the conference of the creamery interests and food commissioners with the Bureau of Animal Industry, the milk producers and other dairy interests of the United States held a convention "to develop uniform practical regulations governing the production and care of dairy products." The standardization of conditions under which milk and cream are handled, pasteurization in the dairy industry, constructive dairy inspection, standards for butter, and the legal regulation of the dairy industry were discussed. Resolutions were adopted to bring about closer relations between the Department of Agriculture and the various dairy interests of the country. A committee was appointed to discuss with the secretary of agriculture the future relations of the Department of Agriculture with dairy interests and prospective legislation liable to affect those interests. A permanent organization was effected, with Mr. M. D. Munn, president of the American Jersey Association and the National Dairy Council, as chairman, and W. T. Creasy, secretary of the National Dairy Union, as secretary.——The Bureau of Chemistry, Department of Agriculture, also has the matter of milk standards actively under consideration, and has announced a hearing in New York, May 9 and 10, by the Joint Commission on Definitions and Standards, for the discussion of standards for milk, cream, condensed milk, and other milk products. This hearing is for the convenience of persons in the New England and other states adjacent to New York. Hearings for the convenience of persons residing in other parts of the country are to be held in the near future.

FOREIGN

Deaths in the Profession Abroad.—H. Hirschsprung, formerly privat-docent of pediatrics at the University of Copenhagen, aged 85.——A. Wolff, professor of dermatology at the University of Strassburg, aged 66.

Age Limit Reduced for Wage Earners' Insurance in Germany.—The age limit has been reduced to 65, so that now the old age pension becomes available at 65, whether the recipient is incapacitated or not. The orphan pension has also been increased, the first orphan receiving 3/20 and each additional orphan 1/20, instead of 1/40 as heretofore, of the parent's invalid pay.

Diploma Factory in Brazil.—Dr. E. L. Lekert, secretary of the Louisiana State Board of Medical Examiners, reports that he has refused to recognize a diploma from the Instituto Nacional de Sciencias, Department de Sciencias Medicas of Brazil of which a "Dr. F. Lawrence" is given as the director. This action was taken after word had been obtained from Brazil, through the New York Education Department, that the institution named was "merely an office to sell diplomas which are not legalized."

Personal.—Dr. Cora Kipp, formerly of Mineral, Ill., who has been a missionary in Bareilly and Brindaban, India, since 1910, has returned for a vacation.——Dr. Paul Wilburforce Harrison, formerly of Nebraska, but for five years a medical missionary at Bahreim, Arabia, under the auspices of the Dutch Reformed Church of America, is at present on a furlough in the United States and delivered an address at Grinnell, Iowa, April 24. Dr. Harrison expects to take a trip through a hitherto unexplored portion of Arabia on his return to his work in July next.

Working Day Begins an Hour Earlier in Germany.—According to a Berlin exchange, the authorities ordered all the clocks in Germany advanced one hour in the night of April 30, so that May 1 began at 11 p. m. instead of at midnight. The clocks are to be changed back again September 30, so that October 1 will not begin until an hour after midnight, September 30. The setting the day forward an hour during the summer reduces the number of hours in the evening for which artificial light is required. Estimating the saving at 1 pfennig per capita throughout Germany during the summer six months, this represents a saving of about $23,000,000, in addition to the hygienic benefit of another hour of sunlight. The war conditions have rendered the change possible without friction as international time-tables do not have to be considered.

WAR NOTES

New Hospital Unit.—St. Francis Xavier University, Antigonish, Nova Scotia, has formed a hospital unit which is now preparing to go to the front. It consists of twelve surgeons, twenty-seven nurses and 120 men. The unit will be under the command of Col. Dr. Roderick C. McLeod.

Red Cross Shipments.—Between Sept. 7, 1914, and April 1, 1916, there had been shipped by the American Red Cross to Armenia, Haiti, Mexico, Poland and Syria, 387 packages of supplies valued at $15,370.59, and there were at that date on hand, for Poland, 138 packages valued at $11,556.40, and thirty-one packages, valued at $1,475, held in reserve for the United States.

Scarcity of Physicians in Poland.—Our Munich exchange relates that an official report states that sixty-four different localities in Poland have no physician, and that the total throughout averages only one physician to each 40,000 persons. The German authorities offer free lodging and certain perquisites to physicians who will go there, and they guarantee financial support up to $50 a month when needed.

What the Red Cross Has Done.—Between Sept. 7, 1914, and April 1, 1916, the American Red Cross has made 169 shipments to the allied powers made up of 29,287 packages of a total value of $790,070.25, and in addition 3,096 cases of supplies valued at $123,876.35 were purchased by the American Red Cross for the French government and shipped to France. To the central powers were shipped, in the same period, thirty-four shipments consisting of 5,372 packages of a total value of $248,521.32. In addition there were purchased and shipped to the Austrian Red Cross, Vienna, thirty-four cases of antitoxin valued at $131,986.50, and to the German Red Cross, Berlin, thirty-four cases of antitoxin valued at $229,595.60. These supplies were paid for by the Austrian and German Red Cross, respectively. There were in the hands of the American Red Cross on April 1, for the allied powers, 1,048 pakages, valued at $41,549.86, and, for the central powers, 569 packages, valued at $2,793.96.

PARIS LETTER

PARIS, April 13, 1916.

The War

LECTURES IN THE CENTERS FOR SPECIALIZED SERVICES

In view of the extension of the specialized services and the small number of physicians qualified to assure their operation, the undersecretary for the military medical service thought it desirable to have given at each regional center a series of lectures by the principal specialists attached to the service. In the eighth region a course of twelve lectures was given within a short space of time, four or five days. It seems to meet this need in a practical manner.

COMMITTEE OF ASSISTANCE FOR TUBERCULOUS SOLDIERS

The committee for assistance for tuberculous soldiers has just been organized under the presidency of M. Léon Bourgeois. The officers include Drs. Landouzy and Debove, dean and professor, respectively, in the Faculté de médecine de Paris, vice presidents, and Professor Letulle, secretary general.

ANTITYPHOID VACCINATION

The laboratory of antityphoid vaccinotherapy of the Ecole d' application de médecine et pharmacie militaires de Val-de-Grâce has just manufactured its 100,000th liter of vaccine. This remarkable figure is explained by the fact that the laboratory has not only furnished antityphoid and paratyphoid vaccine for the French army and civil population of France, but has also sent considerable amounts to the colonies, to Russia, Italy, to Belgium, to Greece and to Serbia.

HYGIENE AT THE FRONT

The undersecretary for the medical service has just put into operation a douche bath and disinfection system offered by the Russian government to the French army. It comprises six immense tents and twelve automobile trucks capable of transporting the entire outfit at once to any point whatever at the front. The disinfection of clothing and the destruction of parasites is done while the men are going through the douche. Four tents out of the six which make up the outfit are devoted to this daily operation. Set up in the form of a quadrilateral, they are grouped around a boiler which distributes heat and water according to the requirements. The first tent contains closets for all the articles which cannot sustain a higher temperature than 50 C. (122 F.) without being spoiled, that is, leather vests, caps, belts, etc. These are the first objects which the soldier takes off. After having attached to his wrist a numeral, the soldier passes into a second tent to undress. He finds there, arranged on numbered benches, two cloth sacks. He places in one of these his papers and personal belongings, in the other his clothing; these sacks bear the same number as that given to him on entry; this will enable him to find his complete equipment on issuing from the third tent, which is the douche room, with twenty-five spray heads and floored with slats. In the last tent the men dress themselves, their clothing having meanwhile been disinfected by the boiler at a temperature of 115 C. (239 F.). This installation can treat more than 1,000 men a day, 150 at a time.

FRAUD IN REGARD TO THE CHARACTER OF PRODUCTS FOR USE OF SOLDIERS

The firm of Potel and Chabot, during 1915, manufactured meat pastilles for the soldiers in the field, the advantages of which, they said, were as follows:

> The strength of our meat juice is such that 8 of these pastilles represent the nutritive value of 400 gm. of pure meat or the daily nourishment of a man. . . . Our box of 24 pastilles represents, in its small compass, a reserve of provisions for three days. For the soldier in the field, therefore, it is the indispensable aid which will sustain his strength during days of great fatigue, and in certain cases, may save his life.

The box of twenty-four pastilles is sold for 4.50 francs (about 90 cents); the box of twelve pastilles for 2.50 francs (about 50 cents).

One of the members of the firm has just been prosecuted for fraud, and was fined 1,000 francs (about $200) on the ground that this meat juice is incapable of sustaining life, is no more stimulant than the usual commercial extract of beef, and represents in nutritive value about its own weight of fresh meat, so that eight pastilles, weighing 20 gm., represents 20 gm. of fresh meat and not 400 gm. as the advertising indicates; present conditions, moreover, in which the neediest family is ready to make sacrifices for the health of some dear one in the army, render particularly reprehensible the false claims that a product sold at an exorbitant

price is capable of saving the life of a soldier under critical circumstances.

TREATMENT OF THORACIC WOUNDS IN MILITARY SURGERY

The Réunion médico-chirurgicale de la V-e armée devoted two recent sessions to an interesting discussion of the treatment of thoracic wounds. According to Dr. Maisonnet, there are three kinds of symptoms to be considered in particular: (1) symptoms of serious asphyxia, which are rarely observed, being due to extensive lesions that indicate a rapidly fatal outcome; on the contrary, dyspneic symptoms which improve rapidly under treatment are frequently seen; (2) hemorrhages; hemoptysis is observed in 6 per cent. of the cases; hemothorax is always more or less frequent; parietal hemorrhages are rare; (3) symptoms of infection which are produced either by the projectile or by additional lesions. Bullets and fragments of shell of great velocity do not carry much infection. Fragments of shell which remain in the thorax generally become encysted and produce infectious complications in 8 per cent. of cases; fractures of the ribs are very frequent, being found generally at the orifice of exit. The presence of respiratory difficulties or hemorrhages calls for appropriate treatment. It is necessary, above all, to insure absolute immobilization. Morphin quiets the dyspnea. The hemostatic vasoconstrictors (ergotin and emetin) find regular employment here. This treatment should begin at the first aid post, at which rest rooms should be provided. The patient ought not to be transported in an ambulance until after the disappearance of the shock. Ether and caffein should not be used lest they increase shock. Better results are obtained with camphorated oil and with serum given subcutaneously up to the dose of a liter a day in two or three doses. In cases of progressive hemothorax, puncture is absolutely contraindicated. In a few cases of fixed hemothorax, puncture should be employed during the first days, but only when necessitated by the presence of compression. It is without danger from the eighth to the tenth day and should be employed with a very slow withdrawal of the fluid. Surgical treatment includes complete disinfection, enlargement of the orifice, and daily renewal of the dressings. Infectious complications occur from the eighth to the twelfth day, and, therefore, evacuation should be performed toward the seventh day in thoracic bullet wounds, but not before the fifteenth day in wounds made by fragments of shell.

Dr. Fuster believes that thoracic wounds are benign in comparison with abdominal wounds. The patient cannot be immobilized and allowed to rest in the first aid posts. This should be done in the ambulances operating at a very short distance from the front. The treatment should be medical chiefly. The systematic use of emetin hydrochlorid in doses of from 0.03 to 0.04 gm. per day for eight days has given good results.

Dr. Picqué, surgeon of the hospitals of Paris, says that nothing seems less surgical at first view than thoracic wounds from projectiles in war. In serious cases, the patients die at the first aid posts, or soon after they are placed in ambulances. Necropsy shows that, in all cases, there are large lacerations in the lungs, or bilateral perforations complicated by pericardiac or vertebral lesions, or perforations involving both the thorax and abdomen and complicated by lesions of the liver, stomach, spleen or the kidneys. In a certain number of benign cases, recovery takes place without clearly defined pleuropulmonary signs or after spontaneous regression following a slight effusion. The most numerous cases are those of complete perforation by bullet wounds or incomplete perforation by fragments of shell complicated by a moderate hemopneumothorax. The treatment, according to the degree of injury and the stage, is either puncture or pleurotomy. Is it better to refrain from operating until the liquid withdrawn by puncture shows macroscopic signs of purulence? Or is it preferable to employ pleurotomy systematically in all cases of hemothorax? Both these rules are too sweeping. Careful medical observations and cytologic study of the effusions make it possible to diagnose the condition early and to avoid useless thoracotomy. In forty-eight cases of hemothorax observed by Picqué, recovery occurred in thirty-one in which repeated puncture alone was employed; only seventeen required pleurotomy. Pleurotomy is merely a palliative operation for the improvement of the pleural complication. Cicatrization in favorable cases occurs in a few weeks. In all cases, in spite of the most scrupulous care, recovery never occurs with the same regularity as in cases of other wounds of other regions. Intermittent febrile reactions often occur, being probably due to infection of the pulmonary parenchyma or to localized infection. The extraction of projectiles which are poorly tolerated by the lung and susceptible of producing fatal septicemia should enter into the surgical treatment of thoracic wounds.

APPARATUS FOR MUSCULAR PROSTHESIS IN PARALYSIS CAUSED BY SECTION OF THE NERVE

Dr. Cunéo of the Faculté de médecine de Paris, at a recent session of the Société de chirurgie de Paris, read a paper on apparatus for remedying paralysis caused by section of the nerve. These forms of apparatus may be divided into two groups, those intended for permanent, and those for temporary prosthesis. The first are designed to replace the action of one or several muscles. They should not only correct the attitude of the paralyzed limb, but also restore as nearly as possible the normal function. Such apparatus should be light in weight, convenient and not unpleasing in appearance; skilled workmen are required for their construction. Such apparatus, however, should be prescribed only as a *pis aller* and should be reserved for the cases in which operation cannot reestablish the natural function. The devices for temporary prosthesis are intended to prevent or correct the wrong attitudes and deformities which can be definitely cured only by the anatomic or physiologic restoration of the injured organs. The importance of these devices for temporary prosthesis cannot be too strongly emphasized. The unsatisfactory results from operation for compression or section of the nerves are due in great part to secondary deformities, and Cunéo maintains that the use of devices to correct or prevent these deformities not only obviates the necessity for secondary operation, but also greatly hastens the return of voluntary movement. The employment of such temporary prosthetic devices should be more general. It is therefore important that a type of apparatus which does not require especially skilled workmen for its manufacture should be devised. In collaboration with M. Rolland, Cunéo has attempted to devise a type of apparatus which can be constructed by any one, anywhere, and, it might almost be said, from anything, since the material consists merely of plaster strips, iron wire and rubber tubes. Being intended in the first place for the prevention of deformities, these devices are not constructed to permit the use of the limb under treatment. They are, on the other hand, devised to bring the muscles into play as far as possible, which is very important. Cunéo has been led to give his attention especially to deformities due to paralyses of the nerves of the arm. His devices for this purpose consist essentially of an immovable plaster splint applied usually to the palmar surface of the forearm and bearing straight or curved pieces of strong iron wire; to the wire arches are attached tractors composed of tubing, bringing action to bear on the osseous levers through intermediary carefully padded metallic disks.

The wires produce various attitudes of the limb at the surgeon's pleasure, permitting a modification of the direction of the traction and adaptation of apparatus to each case. These devices have produced remarkable results even in deformities which have been in existence for several months. Cunéo has obtained complete rectification in certain cases of contracted joints. It is essential, however, to apply the traction only with greatest slowness. Just as dentists by slow but constant application of elastic traction have succeeded in modifying the form of the dental arches and alveolar cavities, so the very slight traction of these devices gradually produces a lengthening of the fibrotendinous parts and even affects the articular deformities when these are not too greatly accentuated. It is necessary that the elastic traction reproduce the suppressed muscular force. Cunéo believes that, contrary to what was thought at first, it is easier to produce this result by traction made more or less perpendicular to the osseous levers than by traction parallel to the latter.

Election of Two Foreign Associates to the Academy of Medicine

The Académie de médecine has just elected two foreign associates, Prof. Hector Treub of Amsterdam, and Sir Almroth Wright of London.

Death of Dr. Théodore Guilloz

Dr Théodore Guilloz, member of the central service of roentgenography of the twentieth and twenty-first regions and adjunct professor of the clinic of electrotherapy in the Faculté de médecine de Nancy, has just died. He had for a long time specialized in roentgenography, and had been affected by Roentgen-ray dermatitis which compelled the amputation of several fingers.

LONDON LETTER

LONDON, April 17, 1916.

The War

SPECIAL HOSPITAL FOR THE STUDY AND TREATMENT OF "SOLDIER'S HEART"

Since the beginning of the war a large number of soldiers have been invalided home on account of the condition known as "soldier's heart." It was a serious scourge during the American Civil War, and aroused so much attention then that a special hospital was opened in Philadelphia for its study. When the condition showed itself in the present war, the War Office called the Medical Research Committee of the national insurance act to assist it in opening an investigation. The work was entrusted to Sir James Mackenzie. The government has decided to establish at Hampstead a special hospital for the treatment of these cases. The staff includes the leading heart specialists—Sir Clifford Allbutt, Sir William Osler, Sir James Mackenzie and Dr. Thomas Lewis. The hospital is thoroughly equipped. One room is set apart as a bacteriologic laboratory, another room is devoted to the electrocardiograph, another to the orthodiagraph, and another to the Roentgen rays.

THE WITTENBERG CAMP

The publication of the official report on the Wittenberg camp has caused a profound sensation throughout the country. The report is principally based on the evidence of repatriated army surgeons—Major Priestley, Captain Vidal and Captain Lauder. They are the survivors of six British army surgeons sent by the German authorities to take up the medical service in this camp of war prisoners when typhus manifested itself. The area of the camp is about 10½ acres, in which there were 17,000 prisoners, of whom the majority were Russians. In the severe winter both heating arrangements and clothing were deficient so that every window was kept shut to husband what little warmth there was. The food is reported as bad and insufficient. The report states that no precautions were taken to free the Russian prisoners from lice on their arrival at the camp, and for personal cleanliness all that was available was a cupful of soft soap issued at intervals of weeks to a room containing at least 120 men. When typhus broke out among the Russians, Captain Vidal asked that the healthy British, who numbered from 700 to 800, should be placed in a separate compound, but this was refused. The report states that when the disease became epidemic, the German staff left the camp precipitately and that with but few exceptions from this time on all communication between the prisoners and their guards was indirect. Food and supplies were passed into the camps by chutes and trolley. The conditions are described as insanitary, with no arrangements for the separation of those infected from those not yet infected. Three of the British medical officers contracted the disease and died. No covering was provided for patients while their outer clothing was being disinfected. The committee stated in the report that no soap was obtainable until a supply was secured from England by Captain Vidal's efforts. There were numerous cases of posttyphus gangrene.

Cultivation of Medicinal Herbs

Mr. E. N. Holmes, curator of the Pharmaceutical Society's Museum, gave a lecture on the cultivation of medicinal herbs in Great Britain. He said that hitherto we had depended mainly on Germany and Austria for our supply of medicinal herbs, and it was difficult to understand why there should be any necessity to import herbs that grew wild in this country. For instance, it seemed absurd to import coltsfoot by the ton when every clayey railway bank or heavy waste-ground was covered with the plant. In Germany children were taught to recognize and collect medicinal herbs that grew near their homes; these were dried in small quantities in sheds or attics, and probably finished off in farm-house bread ovens after the removal of the bread. In the absence of any system of collection in this country, vast quantities of valuable herbs were left to waste. We could become independent of Germany for our supplies of two valuable drugs—belladonna and foxglove. Belladonna was found in twenty-eight British counties. An enormous increase in the yield could be obtained if the head gardeners on estates where it grew wild were instructed to distribute, in April, all seedling plants to other positions in the same woods, since the seedlings were often too crowded. If this were done and the plants cut at the proper time and sold to the agents of wholesale drug firms, there would be no need to import belladonna, and it was quite possible that there would be a sufficient supply even for export to those of our dominions where the climate and local conditions prevented its successful culture. With regard to foxglove, there was an enormous quantity growing wild in damp, hilly woods in this country, and if large landowners whose soil was silicious would give instructions to their head gardeners to plant out the young plants or scatter the seed in autumn in fresh localities, there would be no necessity to import foxglove from the continent.

Rheumatism as an "Accident"

The wide interpretation given to the term "accident" under the workmen's compensation act has been illustrated in previous letters to THE JOURNAL. By a decision of the House of Lords, the highest court of appeal in this country, rheumatism has been brought within the category. The case was an appeal from the Second Court of Session in Scotland. A miner was employed as a brusher at a colliery. Oct. 23, 1914, the water pump broke down and a large quantity of water accumulated in the pit bottom. Work was suspended, and five days later he was directed to go down the pit. He went down in the belief that he was going to do his ordinary work as a brusher, but on reaching the pit bottom he was told off to bale the water. On this work he was engaged up to his chest in water for eight hours. During the next day or two he felt great stiffness and cold and pains in his joints, but continued to work till the morning of November 2. November 3, he consulted a physician who found that he was suffering from subacute rheumatism. Jan. 26, 1915, he returned to work, but was unable to earn his full wages, and his incapacity did not wholly cease until March 2, 1915. During the whole of this time he was suffering from rheumatism caused by the extreme damp and exposure to which he had been subjected. The sheriff substitute had found that this was an injury caused by accident "arising out of and in the course" of the man's employment, and made an award in his favor. Viscount Haldane said that the question was whether, on the foregoing facts, the event could be, in point of law, an accident within the meaning of the act. He thought that had the man died suddenly while so exposed there could be no doubt that this would have given a title to his dependents to claims on the footing of injury from accident, and he was unable to see why a claim in respect of a less serious mishap should be excluded by the circumstance that the miscalculated action of entering the water took time to produce its consequence. In his judgment, the miscalculated action of entering the water must be taken to have constituted a definite event which culminated in rheumatic affection and to have imported into that event the character of an accident within the meaning of the act. The other lords concurred, and the appeal was dismissed.

State-Aided Treatment of Venereal Diseases

Mr. Long, president of the Local Government Board, received a deputation from the National Council for Combating Venereal Diseases, which presented a petition urging the importance of giving effect to the recommendations of the Royal Commission on Venereal Diseases (THE JOURNAL, April 1, 1916, p. 1038), particularly as regards the provision of adequate facilities for diagnosis and treatment. Mr. Long congratulated the commission on the successful conclusion of their labors, and assured the deputation that so far as he and the department were concerned, they were pushing an open door. The government was prepared to provide the necessary grant to carry out the recommendations of the royal commission with regard to the provision of facilities for diagnosis and treatment. These grants would cover 75 per cent. of the cost incurred by local authorities. It was not proposed to create special hospitals for the treatment of venereal diseases, as it was felt that treatment could be carried out more efficiently and with less danger of prejudice at the existing general hospitals. Mr. Long welcomed an assurance given by the bishop of Southwark that the movement would receive the full support of the religious and social organizations of the country. Mr. Long's announcement gives effect to the most immediate and practical recommendation contained in the report of the royal commission. Of the major recommendations this is the only one practicable through departmental action only. The others—such as confidential registration of causes of death, legal protection for physicians in making certain confidential communications, and the making of venereal disease an inacapacity for marriage would, of course, require legislation.

Marriages

CORNELIUS DEWEESE, M.D., Washington, D. C., and Laurel, Md., to Miss Bessie Anna Munnikhuysen at Baltimore, April 26.

ERNEST HAROLD KING, M.D., Middletown, Conn., to Miss Leola Nelson of Harrington, Del., at Baltimore, May 1.

JAMES MATTHEW DOBBINS, M.D., Long Island City, N. Y., to Miss Margaret Walton of Kingston, N. Y., April 26.

RALPH VINCENT ALLEN, M.D., Canandaigua, N. Y., to Miss Lulu Mae Wood of Cattaraugus, N. Y., April 23.

THADDEUS D. SMITH, M.D., Neenah, Wis., to Miss Frederica Krueger of Kew Gardens, L. I., N. Y., April 29.

THOMAS VINCENT UNIAC, M.D., to Miss Anna I. McGlynn, both of Lawrence, Mass., April 26.

FRANCIS ALOYSIUS CREGG, M.D., to Miss Emily G. Burke, both of Lawrence, Mass., April 27.

OSCAR G. FISCHER, M.D., to Miss Charlotte Louise Ferguson, both of Chicago, April 24.

THOMAS HEINRICH RUSSELL, M.D., to Miss Amelia Randall, both of New York City, April 26.

Deaths

Charles Augustus Wheaton, M.D., St. Paul; Harvard Medical School, 1877; aged 62; for many years one of the most prominent surgeons of the northwest; professor of clinical medicine, later professor of surgery and emeritus professor of surgery in the University of Minnesota; for many years a Fellow of the American Medical Association and a member of the American Association of Obstetricians and Gynecologists; Mississippi Valley Medical Association and National Association of Railway Surgeons; consulting surgeon to the legal departments of the Northern Pacific and Great Northern system; at one time surgeon-general of Minnesota and a member of the police board of St. Paul; who was obliged to retire from active practice eight years ago on account of ill health; died in St. Joseph's Hospital, April 29.

Samuel Franklin Coues, M.D., Rear Admiral, U. S. Navy (retired); died at his home in Cambridge, Mass., May 1, aged 90. Admiral Coues was born in Portsmouth, N. H., Sept. 17, 1825; was graduated from Harvard University in 1845, and from Jefferson Medical College in 1849; he entered the navy as assistant surgeon in 1851; ten years later he was made surgeon, served throughout the Civil War, was promoted to medical director, Aug. 15, 1876, and was retired, Sept. 17, 1887, on attaining the age of 62 years, with the rank of next higher grade to that held on active list. He served as president of the Naval Academy Board of Philadelphia from 1884 to 1887 and his last duty was that of commander of the Naval Hospital, Chelsea, Mass. Since his retirement, Admiral Coues had made his residence in Cambridge.

Charles William Peck, M.D., Brandon, Vt.; Long Island College Hospital, Brooklyn, 1866; aged 75; a Fellow of the American Medical Association; president of the Vermont State Medical Society in 1909, and once president of the Rutland County Medical Society; a member of the New York and New England Association of Railway Surgeons; a veteran of the Civil War; representative from Brandon in the state legislature of 1902; first health officer of Brandon and continuously in that position until 1914, when he was obliged to resign on account of ill health; died at his home, April 21.

Lewis D. Dunn, M.D., Moline, Ill.; Rush Medical College, 1857; aged 81; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years surgeon of the local ship's crew of the Illinois Naval Militia, with service during the Spanish-American War; for forty years local surgeon of the Rock Island System; formerly president of the Illinois State Board of Health; president of the Moline Library Board for many years and for eight years a member of the common council of Moline; died at his home, April 25, from cerebral hemorrhage.

Samuel Max Brickner, M.D., Saranac Lake, N. Y.; College of Physicians and Surgeons in the City of New York, 1891; aged 48; a Fellow of the American Medical Association, American Gynecological Society and American Association of Anatomists; a well known gynecologist of New York; for several years associate editor of the *New York Medical Journal,* and for the last two years editor of the *Medical Pickwick;* formerly adjunct attending gynecologist to Mt. Sinai Hospital; New York City; and gynecologist to Mt. Sinai Hospital Dispensary; died at Saranac Lake, N. Y., May 5.

David Fisher Atwater, M.D., Springfield, Mass.; Yale University, New Haven, Conn., 1839; Medical Institution of Yale College, 1842; aged 98; said to have been the oldest alumnus of Yale; delegate from the Medical Society of the County of Kings, New York, in 1847 to the convention which became the American Medical Association; at one time city physician of Brooklyn, and a member of the board of aldermen; surgeon of the Sixty-Fourth Regiment, New York State Infantry, before the Civil War; died at his home, May 2.

John Rice Fletcher, M.D., Chicago and Winnetka, Ill.; College of Physicians and Surgeons, Baltimore, 1891; aged 51; formerly a Fellow of the American Medical Association; a member of the American Academy of Ophthalmology and Oto-Laryngology, and American Otological Society and once president of the Chicago Laryngological and Otological Society; professor of diseases of the ear, nose and throat in the Chicago Post-Graduate School; died at his home in Winnetka, April 28, from pneumonia.

Edward Ownings Guerrant, M.D., Wilmore, Ky.; Bellevue Hospital Medical College, 1867; aged 78; a practitioner of Mt. Sterling, Ky., from 1867 to 1873; a Confederate veteran; since 1876 a clergyman of the Presbyterian Church; D.D., Austin College, Sherman, Texas; for nearly twenty years president of the American Inland Mission and editor of the *Soul Winner;* died at Douglas, Ga., April 26, from diabetes.

Albert McMichael, M.D., Detroit; Eclectic Medical College of Pennsylvania, Philadelphia, 1878; aged 55; a member of the Michigan State Medical Society; for three terms president of the Board of Education of Detroit; a member of the staff of Grace Hospital; died in that institution, April 28, from septicemia associated with nephritis.

Alvan Felch Bucknam, M.D., Warren, Ill.; Medical School of Maine, Brunswick, 1864; aged 78; formerly a Fellow of the American Medical Association; assistant surgeon of the Second Massachusetts Volunteer Cavalry during the Civil War; said to have been the oldest practitioner of Jo Daviess County; died at his home, May 4.

Charles Prottsman Bowden, M.D., Appleton City, Mo.; Jefferson Medical College, 1891; aged 49; a member of the Missouri State Medical Association and one of the board of managers of State Hospital No. 3, Nevada; was instantly killed, April 19, by the collapse of a barn in which he had taken refuge from a tornado.

Loren Russell Bryan, M.D., Union, Ore.; University Medical College, Kansas City, Mo., 1913; aged 28; formerly a member of the Oregon State Medical Association and an intern in the Good Samaritan Hospital, Portland; died in a hospital in LaGrande, Ore., April 19, after an operation for appendicitis.

Paul Duncan McMillan, M.D., Chicago; Washington University, 1905; aged 38; a member of the medical staff of Cook County Infirmary, Oak Forest, Ill.; who was operated on for removal of the spleen a year ago, on account of Banti's disease; died in the Cook County Infirmary, May 4, from intestinal hemorrhage.

Theophile Joseph Ellinger, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1879; aged 59; a Fellow of the American Medical Association; for ten years a police surgeon of Philadelphia; died suddenly from heart disease while making a professional call in Philadelphia, April 29.

Charles W. Enos, M.D., Denver, Colo.; Homeopathic Medical College of Missouri, St. Louis, 1874; aged 66; president and professor of materia medica in the Denver Homeopathic Medical College from 1897 to 1907; died in the Park Avenue Hospital, Denver, April 20, from phlegmonous laryngitis.

Theodore D. Brooks, M.D., Piqua, Ohio; Medical College of Ohio, Cincinnati, 1864; aged 74; surgeon of the Thirty-Eighth Ohio Volunteer Infantry during the Civil War; for two years principal of the Bellefontaine (Ohio) High School; died at his home, April 24, from heart disease.

William Bernard Murphy, M.D., Minneapolis; Hamline University, Minneapolis, 1897; aged 44; a Fellow of the American Medical Association; formerly druggist at the Minneapolis City Hospital and later a member of the staff of the institution; died at his home, April 24, from lobar pneumonia.

Charles Augustus Fernald, M.D., Boston, Mass.; Harvard Medical School, 1872; aged 68; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home, March 15, from cerebral hemorrhage.

Earl Henry Trezona, M.D., Gibson City, Ill.; Hahnemann Medical College, Chicago, 1911; aged 29; while driving over a grade crossing of the Wabash Railroad at Garber, Ill., in his automobile, April 30, was struck by a train and instantly killed.

John A. Barr, M.D., Fountain Green, Ill.; College of Physicians and Surgeons, Keokuk, Ia., 1875; Jefferson Medical College, 1877; aged 68; coroner of Hancock County, Ill., for two terms; died at his home, April 20, from tuberculosis.

Buford Wayne Young, M.D., Hinton, W. Va.; Medical College of Virginia, Richmond, 1907; aged 30; a member of the staff of the Bigony Hospital, Hinton; died in the Hinton Hospital, April 14, after an operation for appendicitis.

James P. Rhea, M.D., Emmett, Tenn.; Chattanooga, Tenn., Medical College, 1902; aged 44; while delirious, jumped from the upper story of the Salvation Army Home, Bristol, waded Beaver Creek and died from exposure, April 27.

Mary Catherine Buell, M.D., Cumberland, Md.; University of Minnesota, Minneapolis, 1897; aged 59; formerly a Fellow of the American Medical Association; died February 8, from intestinal obstruction following colectomy.

Bertan Henry Wheeler, M.D., Kansas City, Mo.; Kansas City (Mo.) Medical College, 1894; aged 44; a Fellow of the American Medical Association; formerly coroner of Jackson County, Mo.; died at his home, April 27.

John Ross Hinde, M.D., Los Angeles; Rush Medical College, 1902; aged 40; formerly a Fellow of the American Medical Association and a practitioner of Lewistown, Ill.; died in Los Angeles, about April 21.

Charlie Andy Fowler, M.D., Supply, Ark.; University of Arkansas, Little Rock, 1910; aged 32; a member of the Arkansas Medical Society; died about April 17, after an operation for appendicitis.

James J. Wall, M.D., Mallet Creek, Ohio; Cincinnati College of Medicine and Surgery, 1876; aged 66; a member of the Ohio State Medical Association; died at his home, April 24.

Theodore Koeberle, M.D., Eagle Rock (Los Angeles), Calif.; Medical College of Georgia, Augusta, 1885; aged 78; died at the home of his daughter in Eagle Rock, Calif., April 23.

Charles Edward Weidman, M.D., Cresbard, S. D.; Albany (N. Y.) Medical College, 1895; aged 45; a Fellow of the American Medical Association; died at his home, about April 21.

Vincent S. Vestal, M.D., Van Buren, Ark.; Northwestern Medical College, St. Joseph, Mo., 1881; aged 65; also a druggist; died at his home near Dripping Springs, Ark., April 23.

Samuel Henry, M.D., Camp Point, Ill.; New York Medical College, New York City, 1853; aged 89; for sixty-two years a practitioner of Camp Point; died at his home, April 14.

Francis Talbot Chadwick, M.D., Asbury Park, N. J.; New York University, New York City, 1864; aged 72; also a druggist; died at his home, April 24, from acute gastritis.

Charles Henry Mitchell, M.D., Lynn, Mass.; College of Physicians and Surgeons, Boston, 1893; aged 69; died at the Lynn City Home, March 2, from angina pectoris.

James Simpson Niven, M.D., London, Ont.; University of Dublin, Ireland, 1870; L.R.C.P., Ireland, 1871; aged 68; died at his home, January 25, from pleuropneumonia.

Harry Robert Frank, M.D., Brantford, Ont.; Trinity Medical College, Toronto, 1894; aged 45; died at his home, January 31, from erysipelas following an injury.

Edwin E. James, M.D., Cascade, Mont.; University of Pennsylvania, Philadelphia, 1875; aged 65; died at his home April 1, from cerebral thrombosis.

Elisha Wilbur Sweet, Worcester, Mass. (license, Massachusetts, years of practice); aged 70; a veteran of the Civil War; died at his home, April 23.

Isaac Hansen Bowers, M.D., Indianapolis; Pulte Medical College, Cincinnati, 1896; aged 54; died at his home April 16, from heart disease.

George M. Bassett, Vandalia, Ill.; (license, Illinois, years of practice, 1878); aged 66; died at his home, April 14, from bronchopneumonia.

Association News

THE DETROIT SESSION

Special Train from Philadelphia — Additional Banquets and Smokers

PHILADELPHIA SPECIAL TO THE DETROIT SESSION

The *Weekly Roster* of the Philadelphia County Medical Society announces that Philadelphia physicians and their friends plan to leave Philadelphia, using the "Pennsylvania Limited," leaving from the Broad Street Station at 1:12 p. m., Sunday, June 11, arriving in Detroit early in the morning of the 12th. Arrangements have been made for a special round trip ticket which will be on sale and good going June 10, 11 and 12, returning to the original starting point not later than June 20. The fare from Philadelphia will be $23.80 and the return trip will be over the same route as the one going. Only tickets having Detroit as the destination will be honored on this train, without extra fare. Pullman fares are: drawing room, $13; compartment, $10; lower berth, $3.50; upper berth, $2.80. If the number should warrant it, a special train will be operated as a section of the "Pennsylvania Limited," and the committee of which Dr. James M. Anders, 1605 Walnut Street, Philadelphia, is chairman desires to learn of those who plan to use this train.

MEDICAL COLLEGE REUNIONS

In addition to the reunions announced in THE JOURNAL, May 6, the following have been scheduled for the evening of Tuesday, June 13. The smokers will be held at 8 o'clock, while the more formal dinners will be at an earlier hour.

The Detroit College of Medicine and Surgery will have a smoker at the Hotel Statler for which tickets may be obtained by addressing Dr. A. E. Catherwood, David Whitney Building, Detroit, or Dr. H. F. Dibble, Woodward Avenue, Detroit. The price of these tickets is $1.50.

The Western Reserve University School of Medicine will hold a banquet in the Silver Room of the Hotel Griswold. The tickets are $2 per plate and may be obtained by addressing Dr. H. K. Shawan, 1001 David Whitney Building, Detroit.

There will be a banquet for the women physicians who attend the Detroit session, given at the Hotel Statler. Tickets may be obtained by addressing Dr. Grace Clarke, Gladwin Building, Detroit.

The University of Michigan Alumni will hold an informal buffet smoker at the Hotel Statler. Those desiring to attend should address Dr. Ward F. Seeley, Kresge Building, Detroit, on or before June 9. Price of tickets, $1.50.

The Section on Nervous and Mental Diseases will banquet at the Hotel Pontchartrain at 7 p. m. The tickets are $4 per cover and may be obtained by addressing Dr. Charles W. Hitchcock, David Whitney Building, Detroit.

The Section on Obstetrics, Gynecology and Abdominal Surgery will hold a dinner and smoker. Particulars can be obtained by addressing Dr. George Kamperman, David Whitney Building, Detroit.

The Jefferson Medical College Alumni will hold a smoker at the Hotel Pontchartrain. Further particulars can be obtained by addressing Dr. A. D. LaFerte, David Whitney Building, Detroit.

Customs in Diet.—To one who has given little thought to the subject, the dietary habits of a community or nation may appear as something fairly fixed from generation to generation. This is, however, far from a correct view. Adequate nutrition may be exemplified alike among the meat and blubber-eating Eskimos and the strictly vegetarian Hindoos. But particularly where the dietary instincts have led mankind to adopt a more diversified mixed ration one may discover shifts of custom and changes of eating habits within comparatively short periods. A comprehensive survey of this feature and dietetics and an examination of the underlying causes would furnish interesting physiologic, sociologic, and economic details.—Lafayette B. Mendel, Changes in the Food Supply and Their Relation to Nutrition.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(Continued from page 1487)

April 17, 1916, Afternoon

TESTIMONY OF DR. SAMUEL M. WORLEY

Dr. Samuel M. Worley was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. Worley testified that he graduated from the Chattanooga Medical College, Chattanooga, Tenn., in 1902 and has been practicing in St. Augustine, Fla., for fourteen years. He has been county jail physician, appointed by the county board, for four or five years. In his jail practice, he has seen a number of prisoners drink Wine of Cardui frequently. He saw a negro woman named B. S—— drink Wine of Cardui three or four times.

A.—I was called out to the jail to see her, and she was having a kind of a fit, and I saw the empty bottle there.

Q.—Empty bottle of what? *A.*—Empty Wine of Cardui bottle, and the case in which it came, and I gave her a hypodermic injection of apomorphin and she vomited this black-looking liquid up, and she got all right after a while, but I saw her the next day and she looked like she had been on an awful drunk. And I had seen her before under the same influence from whisky and from this other stuff too.

Q.—By the other stuff you mean the Wine of Cardui? *A.*—Wine of Cardui; yes, sir.

Q.—Can you recall any other instance or any other person? *A.*—Yes, sir; a white man by the name of A. V. H——, living at Espanola, Florida, I saw him one time drink it.

Q.—To what extent did you see him drink it? *A.*—I saw him get pretty well fixed up on it, pretty well intoxicated, ready to shoot anybody in sight.

Mr. Walker:—I move that the shooting part of it—

Mr. Loesch: *Q.*—Well, did you see him pull a revolver? *A.*—No, sir; but I saw him with a shotgun in his hands though, threatening to shoot people to such an extent that I decided I would shoot myself before I would let him shoot me.

Mr. Walker:—I move that be stricken out.

Mr. Loesch:—Wait a moment.

Q.—What was his condition at the time? *A.*—He was drunk.

Q.—From what? *A.*—He had been drinking whisky, and when he came back to his commissary he opened up some bottles of Wine of Cardui, and I saw him drink one of them and I saw him open up another one—

Q.—Where is H—— now? *A.*—He is in the convict camp, I suppose; he is under a life sentence.

Q.—For what? *A.*—For murdering his wife in cold blood.

Q.—He is the same H—— that was testified about the other day? *A.*—I don't remember any testimony the other day. His name is A. V. H——. He was a turpentine operator.

He saw a "trusty" prisoner named D. J—— buy a bottle of Wine of Cardui and drink it; he also saw a negro woman named M. J—— and a negro woman named I. D—— drink Wine of Cardui from a bottle.

He saw Mrs. J. B—— drink Wine of Cardui. The witness described the turpentine camps and stated that he had seen men and women come into a store, buy a bottle of Wine of Cardui, open it up and drink the contents on a number of occasions.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he came to Chicago with Mr. R. T. Sabate, who testified a few days previously. The witness has known Dr. Heizer since November, 1915. He had received communications from Dr. Heizer regarding the Wine of Cardui suit. The witness gave the attorneys for the plaintiffs the names and addresses of the various persons whom he saw drink Wine of Cardui. He was repeatedly cross-examined concerning the incidents described in the direct examination.

He named the various turpentine camps in which he saw Wine of Cardui sold and gave the names and addresses of the proprietors of these camps.

TESTIMONY OF DR. J. K. WEBSTER

Dr. Webster was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. J. K. Webster testified that he resides in Athens, Texas, Henderson County, where he has been practicing for nine years. He graduated in 1891 from the Kentucky School of Medicine, Louisville, Ky. He saw a Mrs. M. W—— take Wine of Cardui before meals when he boarded with her family. He was called in professionally and she told him that she had taken Wine of Cardui for the relief of cramping for a period extending over several years. He found that she was suffering from retroversion and slight prolapse and hysterical convulsions, and recommended operation, which the patient did not desire to have.

He saw a Miss A. F—— who was suffering from hysterical seizure and who was nervous; the physical examination showed a retroversion and a narrowing or almost a closure of the mouth of the womb. She had been taking Wine of Cardui to relieve this condition for nearly a year and had been growing continuously worse. He prescribed anti-malarial treatment, discontinuing the Wine of Cardui, dilated the mouth of the womb and gave the patient two months' rest under the care of a trained nurse. He stated that she was relieved in this way.

Mrs. M. M—— he saw in 1914 when she was suffering with profuse hemorrhages. The womb was enlarged and he found a polypus in the neck of the womb. He packed the uterus with gauze, later he removed the neck of the uterus and then found another polypus. As the womb was greatly enlarged, he advised an operation. The patient declined the operation and continued taking Wine of Cardui, which she had been taking for eight years at intervals. Finally in 1907 he assisted in removing the uterus and ovaries and the patient recovered.

He also saw a Mrs. L. B——, to whom he was called for the treatment of gastritis. She suffered with dysmenorrhea and he found a retroversion and enlargement of the uterus and tender ovaries. The patient had been taking Wine of Cardui for a number of years without relief. The patient later had an operation and is now in better health.

He was called to treat Mrs. L. B—— for leukorrhea. He found considerable inflammation and ulceration of the neck of the womb with a discharge of pus and mucus. She had been taking Wine of Cardui for two or three months. He did curettement and the patient recovered.

Mrs. A. B—— he saw in 1895. He was called for a threatened abortion; when he arrived the uterus had emptied itself completely. The patient gave the history of having miscarried two or three times every year for three years previously. She also stated that she had taken Wine of Cardui to prevent miscarriage. He advised her to leave the Wine of Cardui alone, do less hard work, take quinin and iron as a tonic and in the next pregnancy to take no medicine. The next child was born at full term.

The witness testified that he had seen B. J. W—— of Dawson, Texas, drink Wine of Cardui from a bottle in a drug store. He was with two men and the three drank the bottleful and three fourths of another, in the course of an hour. He also saw Joe H—— of Athens, Texas.

Q.—When did you see him use it? *A.*—I saw him once in 1914.

Q.—Where? *A.*—At the back door of the drug store where I office. He and three others were drinking from a Wine of Cardui bottle. I don't know whether they drank it all at that time or not. Again in 1915 I saw the same man with two companions take the bottle out of the carton, draw the cork and they drank it there in the inside of the drug store, at the back end of the drug store.

Q.—Drank the entire bottle? *A.*—I suppose they did. They threw it out of the door.

Q.—Were they sober when they came in? The last time? *A.*—Apparently so.

CROSS-EXAMINATION BY MR. WALKER

The witness testified that he has been in Chicago since March 29. He first saw Dr. Heizer in March, 1915, at Dallas, Texas. He was in Dallas for a meeting of the Southern Medical Association. The witness is not a subscriber to THE JOURNAL, and had not seen the articles in THE JOURNAL concerning the Wine of Cardui suit.

The witness then gave to the attorneys for the plaintiffs the names and addresses of the patients referred to, also the

name of the owner of the drug store in which he saw Williams and the others drink Wine of Cardui, also the names of the clerk in the drug store and the stockholders.

He testified that he has seen Hostetter's Bitters, Peruna and lemon extracts drunk as a substitute for whisky, in addition to Wine of Cardui.

The witness was also repeatedly cross-examined concerning his examination and treatment of patients mentioned in the direct examination. He testified that he prescribed iron, quinin, strychnin and arsenic in capsules.

The witness, again questioned, told his experience as to various operations performed on patients, number of visits and the treatment.

The further hearing of said cause was adjourned to 10.30, April 18, 1916.

April 18, 1916, Morning

TESTIMONY OF DR. J. K. WEBSTER (*continued*)

The Court met pursuant to adjournment. Dr. J. K. Webster resumed the stand for the defendants.

FURTHER CROSS-EXAMINATION BY MR. WALKER

Dr. Webster was again examined in detail regarding the patients mentioned in the direct examination.

TESTIMONY OF DR. ARTHUR A. SMALL

Dr. Arthur A. Small was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Arthur A. Small testified that he is a physician and surgeon practicing in Chicago. He graduated from the University of Toronto in Canada in 1895 and later at the Royal College of Surgeons and Physicians in London, England. He worked as intern in Toronto, had a year and a half postgraduate study abroad and since he came to Chicago has been senior physician at St. Joseph's Hospital.

The witness has heard of cnicus benedictus but has had no experience with it. He has had experience with viburnum prunifolium.

Q.—Now, will you explain to the jury, or rather tell the jury what your experience has been with viburnum prunifolium? *A.*—When I was resident in the general hospital in Toronto, that is a hospital of 400 beds, they have a department there especially for diseases of women, and in that department over a course of some months, cases in which women were suffering from too great flowing both during their monthly sickness and between it, cases in which women had too big uteri, those cases were treated with viburnum prunifolium. In some of those cases, for example, those women who had too great a flowing—of course they were all in bed at the time—during the taking of the viburnum, the flowing would stop, during the taking of it, at times the flowing would stop. In the same case, the viburnum would then be stopped and the women might stop for some time and then commence to flow again, not taking any medicine, and no medicine at all being given, and then again that woman would commence to flow again. That is, the taking of the viburnum in those cases which were flowing, had no effect on it. They might stop or they might flow. The same thing would happen if that woman was simply resting.

In those cases, in which the uterus was too big, which was found by measuring it on the inside with an instrument, and in which the viburnum was given over a course of weeks, it had no effect in making that womb smaller. That is practically the experience that I had at that time.

Q.—You say it had no effect in making the womb smaller. In what way did you read that conclusion? How did you determine that, if you did determine it? *A.*—That was determined in two ways. It was determined first by simply feeling that organ with both hands, and determining roughly in that manner. It was determined accurately by passing an instrument, which is called a sound—it is simply a long bit of wire, about the thickness of a small slate pencil, and it has markings of the fractions of an inch on it—by inserting that on the inside of the womb, the measurement was recorded, it would record, of course, the length of the inside of that cavity. The inside cavity will diminish as the outside measurements diminish.

Q.—Now, Doctor, did you insert the sound of which you have spoken, when the wombs were under treatment with viburnum or not? *A.*—Yes.

Q.—Did you do that frequently, or rarely? *A.*—It was done frequently.

Q.—Was it tried with the same patient on many different times, the sound inserted? *A.*—Yes.

Q.—While she was under viburnum treatment? *A.*—Yes.

Q.—Now, what was the effect of the tests on the particular women from time to time, or on a particular woman while she was under the viburnum treatment, as to the insertion of the sound, and as to the numbers indicated thereupon? *A.*—Well, the effect was that there was no appreciable difference in the measurements of that organ. That is one thing, and the other is that there was no difference in the flowing of those women who were flowing, as to whether they were taking viburnum or whether they were simply resting in bed.

Q.—Now, as a result of your experience with viburnum in that hospital, have you an opinion as to whether or not viburnum is a medicine of any value in the treatment of female diseases? *A.*—I have an opinion, yes.

Q.—What is that opinion, Doctor? *A.*—In my opinion, it is of no value. I have personally never used it since that time.

The witness was then asked a hypothetical question similar to that which has been asked other witnesses. There was read to him a statement from the Cardui Song Book, No. 4, to the effect:

> "No matter from what form of female disease you may be suffering, it would benefit you to take Wine of Cardui."

He was then asked to mention a few diseases from which a female might be suffering, which he did. Argument was then made by the attorney for the plaintiff against the question in that the diseases named were not female diseases, the court ruling that it is perfectly apparent that tuberculosis and cancer may affect certain organs that are peculiar to women.

A.—In my opinion, such a medicine given for tuberculosis of the female organs would mask the symptoms which that disease would give, and would mask the general symptom of weakness and fatigue which that disease would give a woman, so that diseases grow to an extent to which it would not grow if such a type of medicine was not taken.

The witness then described the way in which tuberculosis may affect the female organs. He testified that a hypothetical medicine such as has been described would aggravate and would not cure this condition.

Mr. T. J. Scofield:—In answer to my previous question, you spoke of cancer of the female organs as being one condition from which a woman might suffer. Now this has been gone into, Doctor, a number of times in the examination, and I do not wish for you to go into it in detail, but I want to know how such a medicine as I have described to you, the hypothetical medicine, would affect such a condition. *A.*—Such a medicine affects cancer in two different ways. There may be a cancer which will give no local symptoms of pain, and the only symptom which there will be given to the individual will be simply one of fatigue, feeling more tired and not being up to their usual grade.

A medicine of this type with the amount of alcohol which was stated it contained, will give that person a brace so that the symptoms that are applied to the whole body will not be felt, or may not be felt at all, so that (not being felt and assistance not given to the individual) the local disease will grow.

Then again, that medicine might affect in some individuals the small amount of pain which is felt usually, only a small amount at first when the cancer commences. So in those two ways it would affect it so that the disease would progress.

Mr. T. J. Scofield:—Then, Doctor, assume that this hypothetical medicine, to which I have directed your attention, should be taken by a woman, suffering from the condition of cancer of the womb, if she should continue to take this medicine in doses, running from three or four doses a day—or from two to three doses a day—for a period of four, five, six, seven, eight, nine, ten, eleven, or twelve months, what would be the probable effect upon the conditions?

Mr. Hough:—That is objected to for the reason already given.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—The effect on the condition would be that the disease would have progressed so that it in all probability would not be operable.

Mr. T. J. Scofield: Q.—What do you mean by that when you say not operable? *A.*—I mean that the condition had grown, and it had involved the parts which were near it to an extent that the trouble could not be taken out by surgical means.

Dr. Small then described fibrosis of the uterus and stated that the hypothetical medicine would aggravate the condition. He stated that cancer is curable in its early stages by removal and that it is never a medical condition. To determine whether or not the condition is surgical or medical one must make a thorough examination.

There was then read to the witness a quotation from the New Orleans *Picayune* of an advertisement of Wine of Cardui suggesting that women avoid a surgical examination, the Court ruling against the question on objection of the plaintiffs. The Court stated again that the issue in this case is: "Is the medicine a fraud; is it worthless and is it a business built up on deceit?"

There was then read to the witness a long quotation from the Home Treatment Book describing the methods of treatment recommended in the book for prolapse of the uterus. The witness was asked if he had an opinion as to whether such treatment would effect a cure, to which he answered that it would not. He also answered that the treatment described in the Home Treatment Book would not cure

flexions of any kind and he stated his reasons. The witness then defined the terms uterine tonic and uterine sedatives.

Q.—Will you explain, Doctor, whether or not in your opinion, those two terms "uterine tonic" and "uterine sedative" are consistent or inconsistent, and give your reasons for it? *A.*—They are absolutely inconsistent. It is, for example—if a mother was rocking and singing her baby to sleep to prevent it from crying, as a sedative, and at the same time was shaking that baby to wake it up. That is, they are absolutely antagonistic. You cannot contract your muscle of the uterus, and at the same time have it expanded or distended.

The attention of the witness was called to a Cardui advertisement in the *Picayune* and he stated that in his opinion the advice in the advertisement was not true. The witness stated that the action of the various active principles in the hypothetical medicine would vary as to the individual taking the medicine.

The witness was then read an advertisement from the New Orleans *Picayune* of Feb. 5, 1906, and he was asked as to its truthfulness. He replied that the hypothetical medicine would not relieve or cure complaints common to women. The witness said that he had personal experience with Wine of Cardui. He was present when Dr. Clarence Webster injected Wine of Cardui into the uterus and ligaments of a patient who was operated on and described the experiment of Dr. Webster as it was previously described.

He stated that on the basis of such an experiment he would testify that Wine of Cardui is not a uterine tonic and also that it is not a uterine sedative. On the basis of that experiment it was his opinion that pituitrin is a uterine tonic. He testified that in his opinion on the basis of this experiment Wine of Cardui would have no effect on the ligaments of the uterus and so could not pull a uterus up that was prolapsed.

The witness defined the difference in action of drugs when given by mouth compared with those given hypodermically.

The witness was asked to define "menopause" and state some of the most common conditions from which women suffered at that time.

A.—Some of the most common are tumors of the uterus, that is, muscle tumors or fibroid tumors of the uterus and malignant or cancerous tumors of that organ, as to diseases.

Q.—Why is that, Doctor? *A.*—Well, it is a mechanical explanation, that that organ which is gradually giving up its function which it has performed since the woman has entered into puberty, that organ is gradually giving up its function, and so undergoing a change, is more liable to disease. That is, it cannot defend itself so well.

Q.—Now, Doctor, do the various diseases or conditions which you have referred to as occurring at that time, require the same treatment or different treatments? *A.*—They require different treatment.

Q.—That is, do they require exactly the same kind of treatment or different treatment? *A.*—They require different treatment.

Q.—I will ask you this, Doctor: do you know of any form of treatment which would answer for each of these conditions and every one of them for each and every one of these different conditions, one common form of treatment? *A.*—I do not know of one common form of treatment, no, sir.

Q.—I will ask you now, Doctor, whether or not having in mind the hypothetical question, which we have submitted to you, and the medicinal solution described therein, whether that solution with its alcoholic content is a proper and a scientific medicine to use all through the period of the menopause?

Mr. Hough:—That is objected to, if the Court please.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—In my opinion, it is not.

Mr. T. J. Scofield: Q.—Why, not, Doctor? *A.*—It is not for perhaps one chief reason. Not only the diseases I mentioned, but in that time of life there are conditions, that is, the condition of nervousness which so many women suffer from simply having hot flashes, and nervous spells, so-called, both mentally and in a bodily way, very often feeling depressed mentally—that a medicine such as described in this condition, occasions an unnatural uplift to the individual, which will mask conditions which are very liable to become serious.

The further hearing of the cause was adjourned until 2 o'clock the same day, April 18, 1916.

April 18, 1916, Afternoon

TESTIMONY OF DR. ARTHUR A. SMALL *(continued)*

The Court met pursuant to recess. Dr. Arthur A. Small resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. HOUGH

On cross-examination Dr. Small testified that the tests made with viburnum in Toronto were conducted under the direction of the professor of gynecology of the University of Toronto, Dr. J. F. W. Ross, who died about three years ago. Dr. Small was chief assistant of Dr. Ross at that time. Between fifteen and twenty days were involved in the experiment, and both the fluidextract and the solid extract of viburnum prunifolium were used. In some of the patients who had pain with the other symptoms the alcoholic solutions would prevent or lessen the pain.

Q.—Have you ever known it to do any good in cases of dysmenorrhea, any cases? *A.*—Well, some that had the alcoholic preparations, the pain was diminished, and sometimes stopped.

Q.—How about the flowing? *A.*—As I said, the flowing, when they were taking it, would stop, and again, when they were not taking it would stop, but it had over a long period of time no direct effect on the flowing.

Q.—Well, how could you say which of the cases were coincidences and which were cause and effect? *A.*—You could see which were coincidences in this way: For instance, one case coming in that was flowing, given viburnum prunifolium, in that case the flowing would stop. Given then for a few days after that, then the flowing stopped. After three or four days the flowing came on again, no medicine being taken. Waiting another three or four days, without any medicine being taken, in some cases the flowing would stop, stop for practically the same amount of time as if they were taking the medicine. That is, in one case observed over a long period of time there was no difference as to whether they were taking medicine or were not taking the medicine.

Q.—Well, that would be metrorrhagia, wouldn't it? *A.*—Yes.

Q.—Not dysmenorrhea? *A.*—What I was just speaking of was menorrhagia, but some of those cases also had dysmenorrhea.

Q.—I said "metrorrhagia," not "menorrhagia." *A.*—Yes, I said metrorrhagia.

Q.—That was the case you were referring to? *A.*—Yes.

Q.—And you think from that experiment you could say that it was only a coincidence in each case? *A.*—I only gave that as one instance. I think that that experiment with different people and watched carefully, that that would be conclusive, yes, sir.

The witness testified that he believed that the majority of men at the University of Toronto have stopped using viburnum prunifolium. He cannot remember any specific instance in which viburnum was used in the hospital in Chicago. He, himself, has not used it. He stated that should he be called to see a case of amenorrhea due to anemia he would treat it with iron, which he always prescribes in solid form in a capsule. He has not given iron in liquid form for fifteen years. The only other drug which he has used in such cases is arsenic. When malaria is present he gives large doses of quinin. In menorrhagia, depending on the cause, he has most frequently given the fluidextract of ergot. He has also given iron and arsenic. He has sometimes given hydrochloric acid, tincture of digitalis, tincture of hyoscyamus, tincture of gentian compound and tincture of strophanthus. He does not know the exact amount of alcohol in these preparations. In dysmenorrhea he has usually given treatment to stop the pain until he could treat the cause. His treatment of retroversion and retroflexion depends entirely on the cause of the condition. He has at times advised operation and has given purgatives. The witness stated that he is speaking entirely from his own experience and from what he has heard men say who have done much operative work.

Dr. Small described the way in which displacements are brought about and explained why the uterus when long displaced does not spring back into position when the cause of the displacement is removed; namely, the elasticity of the ligaments is lost because they have been overstretched for a long period of time.

He then described the symptoms of inflammation of the uterus and the treatment, describing also the necessity of operation to clear up adhesions due to inflammation. He described the treatment of retroflexion and stated that he did not believe that it could be cured by mechanical means. If the flexion caused no symptom it would not be considered an operative case. If there were symptoms of pain he would give potassium bromid. He testified as to what he could consider pathologic flexions and whether the term is limited to conditions which produce symptoms and occasion to discomfort. The witness stated that the treatment of retroflexions would vary with the individual.

Dr. Small, in reply to questions, discussed the treatment of prolapse, stating that no prolapse of the second degree could be cured without operation. The first treatment would

be to place the organ back in place, support it with a pessary, and give ergot to reduce the size of the organ. The treatment of cases of first degree prolapse which are not operative would be to place the organ in its proper condition, to watch the organ over several weeks, to give medicine which will reduce its size, and to tell the woman to stand as little as possible, etc. Ergot would be given to reduce the size of the uterus.

The witness testified that he does not use pulsatilla or aletris and that he does use adrenalin, gelsemium and nux vomica. He has used digitalis and quinin. These were not used specifically for the treatment of prolapse, but for secondary complications.

Concerning the hypothetical medicine he believes that its only usefulness would be as a slight bitter tonic to the stomach. This he qualified by stating that the dose of viburnum in the preparation was so slight as to have practically no effect.

SYNERGISM

Q.—Do you know anything about the synergistic action of drugs? *A.*—I know what the word means, yes.

Q.—Well, assuming that the other drug has the properties which were credited to it, would you say that it was not affected by the amount of viburnum which is added in the hypothetical question? *A.*—Yes, I would say that I don't think that any bitter tonic can have any synergistic value in any way when combined with another drug.

Q.—Well, how about the addition of the other drug to the carduus benedictus? *A.*—Well, that is what I was referring to.

Q.—Yes, but you classify viburnum prunifolium as a bitter tonic? *A.*—No.

Q.—Didn't you assume that carduus benedictus was a uterine medicine? *A.*—I assumed whatever was in the hypothetical. I don't remember that the hypothetical said it was. I don't remember that.

The witness was then cross-examined as to his knowledge of cnicus benedictus, which he stated was based on the hypothetical question. He was not certain whether the hypothetical question stated it was antispasmodic or antiperiodic. These two terms he described:

The Witness:—An antispasmodic would be something that would prevent spasms.

Mr. Hough: *Q.*—Is an antispasmodic a sedative? *A.*—It might be, yes, in certain conditions.

Q.—Would you say it was a sedative as distinguished from a tonic? *A.*—Yes.

Q.—Well, now, what would you say is an antiperiodic? *A.*—Well, an antiperiodic is, I think, a term which is used really for a substance which has slight antimalarial qualities.

Q.—A medicine that had antimalarial qualities would be good then for any condition which was created by malaria, would it? *A.*—If it had, yes.

Q.—Well, but you assumed that it had those, however? *A.*—Yes, I say yes.

Q.—Therefore that medicine would be good in any menstrual disturbance due to malaria, would it? *A.*—It might.

Q.—Then you have assumed and had it in mind that it might be a uterine medicine—mustn't you, necessarily? *A.*—If it said that, yes.

Q.—Yes. Now the viburnum prunifolium is a uterine medicine too, isn't it? *A.*—It was assumed.

Q.—It was assumed. And you say the combination of two uterine medicines of that character has no synergistic action? *A.*—Yes, that would be my opinion, yes.

Q.—That it has or has not? *A.*—Has not.

Q.—What is your understanding of the word "synergistic"? *A.*—My understanding is this, that it is two medicines which, when combined, do not just give you the summation of their action, that is, for instance, if morphin acts equal to the figure three, and some other drug acts equal to the figure four, it does not simply give you the action seven, but gives you a multiple of that action.

Q.—Well, now, apart from the hypothetical question, do you know whether viburnum prunifolium would have any synergistic action mixed with anything, any other medicine? *A.*—I personally do not know of any, no.

Q.—You mean it would be your opinion that it does not have any synergistic action? *A.*—Yes.

Q.—And that is based upon your opinion that it is of no value as a medicine? *A.*—No, that is based both—it is based on the hypothetical question with its—

Q.—Well, it is your opinion that viburnum prunifolium is absolutely inert and of no value therapeutically in any of these cases? *A.*—Do you mean my personal opinion?

Q.—Yes. *A.*—Yes.

Q.—And your personal opinion would not be affected by what any number of medical writers said on the subject, would it? *A.*—Well—

Argument was then made by the attorneys for the defendants against the introduction of excerpts from various books. The Court stated that questions as to whether the witness agreed with some certain authority were improper, but there was no objection to the use of language from various books in putting questions to the witness.

Q.—Do you regard Dr. Butler as any authority on these subjects, Dr. George F. Butler? *A.*—No; I have not heard of him as an authority on those subjects.

Q.—Do you know Dr. George F. Butler? *A.*—No, I do not, sir.

Q.—The Dr. George F. Butler who is the head of the Department of Therapeutics and preventive and clinical medicine, of the Chicago College of Medicine and Surgery—the medical department of Valparaiso University. Do you know that Dr. Butler? *A.*—I do not, sir.

Q.—Never heard of him? *A.*—I have heard of him, but I do not know him, sir.

Mr. T. J. Scofield:—Dr. Butler resides in Chicago.

Mr. Hough:—I beg your pardon; he does not reside in Chicago.

Mr. T. J. Scofield:—This is his headquarters. He may be down in Mud Springs. He has an office right here, and is here every week.

Mr. Hough:—Will you bring him in?

Mr. T. J. Scofield:—I will do it, if you will pay me a fee for bringing him in, for his services.

Mr. Hough:—I will do it; I will do it.

THE COURT:—Does that include merely bringing him in to the court room, or putting him on the stand?

Mr. Walker:—That is a promise, Judge.

Mr. Hough: *Q.*—Doctor, is it not a fact that the action of black haw is best understood by classing it with the volatile oil group? *A.*—That I don't know, sir.

Q.—Is it not a fact that it acts as an antispasmodic, diuretic nervine tonic, being especially useful in various uterine disorders, such as spasms and membranous dysmenorrhea? *A.*—Are you asking me if that is true?

Q.—Isn't that a fact? *A.*—Not as far as I know—it is not.

Q.—Is it not a fact that the various vasomotor disturbances in the menorrhagia incident to the menopause are frequently relieved by this remedy? *A.*—No, sir; I do not think that is true.

Objection was made by the attorneys for the defendants to such questions, and after argument the Court ruled:

THE COURT:—You may ask him whether that treatment, in his opinion, is the proper treatment. And you have asked him that three times and he said no.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: *Q.*—Is it not a fact that this remedy is also of some value in the prevention of abortions?

Mr. T. J. Scofield:—If the Court please, I object to the question.

THE COURT:—He may answer.

To which ruling of the Court the defendants, etc., excepted.

THE COURT:—You are speaking of black haw, now.

Mr. Hough:—Black haw, yes.

The Witness:—I think it is of absolutely no effect whatsoever, in abortion, absolutely none.

Mr. Hough:—Is it not a fact that its sedative properties render it serviceable in relieving the severity of after-pains? *A.*—I don't think that is true.

Q.—Doctor, how would the giving of this medicine mask cancer, for instance? *A.*—The hypothetical medicine?

Q.—Yes sir. *A.*—Well, the hypothetical medicine which was given to me had in it 48 minims of absolute alcohol. I think that that, given over a lengthy time, will mask the commencing symptoms; as I said before, of a cancer.

Q.—Would that masking process be due to the alcohol alone? *A.*—Yes; in the hypothetical question—in the hypothetical medicine, yes.

Q.—The medicine itself, that is the viburnum prunifolium and the carduus benedictus would have no such effect, would it? *A.*—No; I think not, in the doses which were given in that hypothetical—that is three grains only of the viburnum to the dose.

Q.—And how much of the other? *A.*—I think 30 grains of the carduus benedictus.

Q.—Now, would it in dosage, without the alcohol, the viburnum prunifolium and the carduus benedictus? *A.*—Yes. I think, assuming the virtues which were given in that hypothetical question, that it was a sedative to the spinal cord centers and reduces reflexes, irritability—which means reduces the nerve impulses—I think, in certain doses with that assumption, it would.

Q.—Well, how much larger doses of the viburnum prunifolium and the carduus benedictus would have to be given in order to have that effect? *A.*—Well, I think that at least—at the very least, ten times the viburnum would have to be given to have that effect.

Q.—I am not talking about the viburnum alone; I am talking about the carduus benedictus also. *A.*—Well, the carduus benedictus was given in its minimum dose, I believe, in that question.

Q.—Then, how could you say it would have no action? *A.*—Well, I think it would have no action in preventing the pains or the fatigue which would come with that condition.

Q.—Didn't you just state that the hypothesis required you to assume that it was a uterine medicine? *A.*—In the very slightest extent—if I remember.

Q.—Well, then, how much more of the carduus benedictus would there have to be in the medicine, in order to make the effect more pronounced? *A.*—Well, from what I remember of that hypothetical question, I don't think that any dose of carduus benedictus would

have an effect upon the uterus; because if given in larger doses, it is said that it causes nausea and purgation; and I think, to get any physiological effect from that medicine it could not be given in large enough doses to prevent the pain which would come with that condition.

Q.—Then would not that indicate, if its dose was the 30 grains, that that was sufficient to accomplish the result? *A.*—No—accomplish the result as a bitter stomach tonic.

Q.—Known also as a sedative to the uterus—you so stated, haven't you? *A.*—No—I don't think it would be—my assumption was that it was such a slight sedative that that would not act in that way.

Q.—You would not know how much more would be required to make the action more pronounced? *A.*—Well, I say that I don't think of a drug of that type, that you could put enough in it to act in that way, without causing the nausea and irritation of the bowels, which it is said to do.

Q.—Then you say that the viburnum prunifolium and the carduus benedictus, of itself, could not mask such a disease as cancer? *A.*—In this hypothetical question, no, I don't think it would.

Q.—And whatever masking was done, would be by the alcohol alone? *A.*—Yes.

Q.—Now, what is the effect on the human system of that much alcohol taken by itself? *A.*—Well, I think that—of course it would vary a great deal with the individual. I think that with the majority of individuals it would simply give them a feeling of exhilaration.

The witness was then asked as to the effect of alcohol in the dosage given. He stated that it would be merely exhilarating and explained the way in which it would tend to mask the symptoms of cancer. He stated that the hypothetical medicine could act only as a bitter tonic and would not have any other effect on any female disturbances.

Dr. Small was then cross-examined concerning the experiment by Dr. Webster which he observed. He was asked concerning any blanching which might be produced by alcohol. He was asked concerning the action of pituitrin and as to why it does not act when given by the stomach. This, he stated, is because it is an animal product and is disintegrated in the stomach. He stated that only the posterior part of the pituitary body is used and he believes that the anterior portion is not used because it has been determined that it does not have the action. He does not know what action the anterior portion of the gland may have.

Mr. Hough: *Q.*—Now, would you say that that experiment proved anything more than that Wine of Cardui did not act as promptly as pituitrin? *A.*—Yes; I would say it proved a great deal more.

Q.—It would? Did it prove any more than that it is not as strong, as well as not as prompt in its action as pituitrin? *A.*—Yes; I think it did.

Q.—Well, how could you draw any other conclusion than that it simply did not act as promptly? *A.*—Well, that any medicine which will not act—which does not act by the mouth, or it is said to, and which does not act when introduced into—or under the skin, in practically a thousand times the dose which is taken by mouth—if that does not act within a few minutes, then, from the experiences we have had with other drugs, I would say that that was of no value to that particular part of the body.

There were then read to the witness statements from the Home Treatment Book regarding the treatment of prolapsus and displacements. He stated that such treatment would in some instances be sufficient to relieve the condition. In most cases other treatment would be required. The witness also stated that retroflexion could not be straightened or relieved by the use of a pessary, laxatives or tonics. He does not use any mechanical treatment for retroflexions. Retroflexion is a surgical proposition pure and simple if it is causing severe symptoms.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

On redirect examination the witness stated that blood tonics are rarely used in female disturbances as there is no service in giving a blood tonic for local conditions. Bitter tonics are used by both men and women to increase the appetite. He stated that he understood that there was but a fraction of a grain of cnicus benedictus in the hypothetical medicine and even assuming that carduus benedictus had an antiperiodic action such a dosage would not have an antiperiodic action.

RECROSS-EXAMINATION BY MR. HOUGH

On recross examination the witness testified that his knowledge of the amount of cnicus benedictus was based on what he heard said by Dr. Loevenhart. On motion of the attorneys for the plaintiffs the testimony was stricken out.

Further hearing of the cause was then adjourned until April 19, 1916.

April 19, 1916, Morning

TESTIMONY OF DR. CHARLES A. L. REED

The Court met pursuant to adjournment. Dr. C. A. L. Reed was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. C. A. L. Reed testified that he is a physician and surgeon residing in Cincinnati, Ohio. He has been practicing medicine for thirty years. He is a graduate of the Cincinnati College of Medicine and Surgery of Cincinnati. Subsequently, he had a postgraduate course under Mr. Lawson Tate in Birmingham, England, and he also studied in London, Paris and Berlin. He is consulting gynecologic surgeon to three hospitals in Cincinnati and is a member of various medical societies. He has taught the subject of gynecology in the Medical Department of the University of Cincinnati, and has written a book on the subject of diseases of women.

He testified that inflammations are caused by the invasion of bacteria and described the infection of the various organs of the female genital tract. He named the various displacements of the uterus and described various forms of new growths which occur in the female genital tract. He is not familiar with cnicus benedictus but he knows of viburnum prunifolium. He discontinued the use of the latter because he found it worthless.

Dr. Reed was then asked the hypothetical question whether he had an opinion concerning the availability of a hypothetical solution for the cure of inflammation of the female generative organs.

Q.—What is that opinion? And I wish you to state that opinion fully. *A.*—My opinion is that such a preparation as you have described has no relation to the proper treatment or cure of inflammations, such as I have described. My reasons—and I infer that your question asks me to give the reasons—

Q.—Yes, that is what I want? *A.*—My reason for that answer, or the reasons are several. The treatment of all inflammations consists first, in the removal of the cause. The cause of the inflammations, such as I have described, are germs or organisms. The preparation, such as you have described, or any preparation administered as that preparation is administered, will have no effect whatever in removing these germs and organisms, and therefore would have no influence whatever in the treatment of the disease or inflammation.

I think that covers it. My further explanation would go upon the other side of the question, as to what would comprise proper treatment.

Q.—Let me ask you, Doctor: what about the effect of the alcoholic content of such a solution under those conditions? *A.*—If the inflammation had invaded the urethra, or the bladder, or had extended up to the kidneys, the use of alcohol in any quantity whatever would be very deleterious.

If the infection should be located at a point where the alcohol or its secondary products in the process of escaping from the system, would not come in contact with it, it would have a less modifying influence upon the disease.

The tendency of alcohol in any quantity is to produce more or less congestion of the blood vessels of the stomach and the intestines and, if long continued, of the liver and kidneys. This congestion is participated in by the structures described as the seat of the inflammation, and therefore the inflammation is in that way and to that extent made worse.

Dr. Reed testified that the medicine can have no effect on the cure of uterine displacements or new growths and gave his reasons.

Q.—Now, Doctor, in the treatment of such conditions as you have referred to, like new growths and fibroids, and conditions of that kind, and cancer also, is there any danger by treating these patients by the mouth, of covering up conditions which exist there, so far as those conditions go, and letting these diseases or conditions progress? *A.*—There is.

Mr. Hough:—I object to that, if the Court please.

THE COURT:—You mean with reference to your hypothetical medicine.

Mr. Scofield:—Yes.

THE COURT:—He may answer.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—The hypothetical medicine, if used in the case of cancer, or used in the case of bleeding fibroids, or of a bleeding polypus, would tend to put the patient in increasing danger, for two reasons:

First, it would beguile her into a sense of false security, in which sense of false security, she would live in expectation of results in the direction of cure, that she would not realize. During all of this time, her general strength is being impaired by the continuous drain upon the system, from the continuous loss of blood, or the intermittent or interrupted, but excessive loss of blood, and in the instance of cancer, her life is still further endangered by permitting the disease to advance, until it gets beyond the possibility of surgical relief.

CROSS-EXAMINATION BY MR. HOUGH

On examination, the witness testified that he was a trustee of the Association about sixteen years ago. He was president of the Association in 1901 and 1902, and was chairman of the legislative committee for a few years following his retirement from the presidency.

Q.—What were the duties of the Legislative Committee? *A.*—The duties of the Legislative Committee were to carry on an educational propaganda with reference to the public health question, and to bring the matter to the attention of the various legislative bodies in the country.

Q.—And with Congress? *A.*—And with Congress. That is a legislative body.

Q.—That was recently disbanded, was it? *A.*—The Legislative Committee was disbanded I presume, four or five years ago, at the time of my retirement when that body or organization was merged into the "Council of Education and Public Health."

Q.—Was not that disbanded immediately after President Wilson's message to Congress about the insidious lobby there? *A.*—It was not. It was long before President Wilson was inaugurated.

Q.—You are positive that it was not in action in Washington when President Wilson went there? *A.*—I am positive that the Legislative Committee was disbanded before President Wilson was inaugurated.

Q.—Have you held any other public office, Doctor? *A.*—Well, I was a member of the State Medical Board in Ohio.

Q.—Were you ever appointed to any national office? *A.*—No, I never have been appointed to a national office. I was on the Commission to Panama, one time.

Q.—Didn't President Roosevelt appoint you to some office or send your nomination to the Senate? *A.*—Yes.

Q.—What office was that? *A.*—It was not an office. I was appointed as a member—I was nominated at least as a member of the Medical Reserve Corps of the United States Army.

Q.—You were not confirmed, were you? *A.*—I was not.

Q.—Did he withdraw your nomination? *A.*—He did.

Q.—Have you been appointed to any other office that you were confirmed in? *A.*—I have not.

Q.—Doctor, you have no connection with the American Medical Association now? *A.*—Except that I am a member.

Q.—You are not employed by it in any way? *A.*—None at all.

Q.—Other than in this case? *A.*—I am not employed in this case.

Q.—You say you are not employed in this case? *A.*—Not in the ordinary sense of the word "employment." I am here in this case but it is not in any sense an employment. I am here at my own motion, my own instance, my own expense and without compensation.

Q.—Did you suggest yourself as a witness? *A.*—I did not.

The witness was then asked as to his familiarity with various writings on the subject of alcohol to which he answered that he knew of them only in a general way. He testified that the hypothetical medicine would not be good for any menstrual disturbances but that some medicines such as pituitrin and ergot might be of service in some cases. He does not know of any condition in which the hypothetical medicine would be of benefit. He discussed the terms antispasmodic and antiperiodic used in the hypothetical question and stated that assuming that the drugs had these properties they would produce such effects. He defined his use of the word tonic and stated that if it were used in the conditions described, it should be used most discriminatingly. He defined the types of anemia.

Q.—Well, you say a tonic should be given most discriminatingly meaning by that, that it should be given only by a doctor, that is what you meant? *A.*—I think that is the only way that that discrimination can be exercised in a serious case. I think in an ordinary case, when a person wants a tonic under ordinary conditions, with nothing practically the matter, it does not make much difference what they take.

Q.—You say there are such things as uterine tonics? *A.*—Yes.

Q.—Have you ever heard of viburnum prunifolium as a uterine tonic? *A.*—I have heard of it, yes.

Q.—Have you ever heard of carduus benedictus as a uterine tonic? *A.*—Only very recently.

Q.—You mean you have never read the literature on the subject? *A.*—I have seen that there are some mentions of it in that connection. No, not studied the literature.

Q.—Well, apart from a study of the literature, where have you seen any literature on the subject?

After objection, which was overruled on argument, the witness answered:

A.—There is very much that I read in a casual way, in going over the journals or in picking up a book, and that is what I mean by literature, and I have read about this thing here and there, without being able to give you the reference of the bibliography of the subject.

Mr. Hough:—There is a bibliography then of carduus benedictus, is there? *A.*—Yes, there is a bibliography on every phase of a medical subject, I fancy, and on that subject I would expect to find it in the Index Medicus.

Q.—Did you ever look in any of the pharmacopeias for it? *A.*—I did not.

Q.—Did you ever look in any of the foreign works for it? *A.*—I did not.

Mr. T. J. Scofield:—That is objected to.

THE COURT:—Oh, he has answered, it may stand.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough: *Q.*—Now you said that in your opinion, as I understood you, that hypothetical medicine would have absolutely no effect in any of the conditions concerning which you were asked? *A.*—Yes.

Q.—Did you state that? *A.*—I stated that.

Q.—Well, if it has absolutely no effect, how could it ever mask anything? *A.*—Simply by beguiling the patient into a sense of false security or false expectancy.

Q.—It must have some effect in order to beguile, must it not? *A.*—I fancy, yes, a certain psychic effect, a mental effect that comes from the suggestion of the remedy and with the promise and expectation of cure, or of results and hopefulness that those things will be realized.

Q.—That would be the only effect then, the psychic effect? *A.*—Essentially. In the form given, the alcoholic element—there is another thing that is there. If it is a sedative, as assumed, that lessens the consciousness of pain. The giving of alcohol, to a certain extent, lessens the consciousness of discomfort.

Q.—Well, now you are saying that that hypothetical medicine does have some effect, aren't you? *A.*—Well, my answer to that was, that it would have no effect in effecting a cure. I did not say that it would have no effect, but no effect in effecting a cure.

Q.—A cure for what? *A.*—A cure for the inflammation of the generative organs; a cure for displacement of the uterus; a cure for new growths of the uterus and cancer.

The witness testified that he discontinued the use of viburnum prunifolium with the discovery that he was getting no results from it. He was questioned as to his knowledge of the Propaganda Department of the American Medical Association. He was not aware that they had attacked other preparations containing viburnum prunifolium beside Wine of Cardui. He has heard of Hayden's Viburnum Compound.

The witness then described his method of examination in a case of amenorrhea, particularly in the virgin. After a thorough examination not including a vaginal examination, if there is constipation he prescribed a laxative. He sometimes gives drugs to act on the kidneys, such as potassium acetate with small doses of magnesium sulphate and most frequently large doses of simple hot water. He does not remember that he has ever given a fluidextract or a tincture for this disease.

The witness has never prescribed Liquor Sedans or Aletris Cordial. The witness testified that he has never given cimicifuga or Hoffmann's Drops in amenorrhea. He may have given hydrastis many years ago. He may also have given compound spirits of ether. He does not know the exact amount of alcohol in the latter. He discontinued it as it was an unduly stimulating diuretic. He has given nux vomica—from five to ten drops of the tincture. He was not familiar with the percentage of alcohol and he regarded the alcohol in the dosage given as negligible, especially as it was given for a few doses only. The witness described his method of treatment of dysmenorrhea. He defined the term and outlined the causes.

Q.—What is amenorrhea? *A.*—Amenorrhea is a scanty menstruation, from a failure of the menstrual fluid to form.

Q.—Or to get out of the uterus, isn't it? *A.*—No, that is pent up, that is a retention of the menstruation which is quite a different thing.

Q.—Well, but that is classed as amenorrhea, is it not? *A.*—No, I never have classed it so, and it is not susceptible to real classification, because if the menstruation, menstrual fluid, is once deposited in the uterus, it may be held there for a time, but the time comes when it comes away.

Q.—Well, until it can come away, it produces congestion, don't it? *A.*—Yes, I would say that it would cause congestion.

Q.—And if the womb was crooked back that way, as in that third picture, it would not be possible for the flow to come out, would it?

Mr. Walker:—That is Chart C? *A.*—Yes, it is possible, but that is what causes the pain in connection with it.

Mr. Hough: *Q.*—Well, that would also be amenorrhea, or scanty menstruation, would it not? *A.*—No, it is not scanty menstruation, because the menstrual fluid has formed, and because it has not appeared upon the surface, is no evidence that the menstrual fluid has not formed within the uterus.

Q.—Is not that the meaning of amenorrhea, that it don't come away? *A.*—The meaning of amenorrhea, as I have here employed it, is that the menstrual fluid does not form within the uterus.

Q.—Well, you say, as you have employed it? *A.*—Yes.

Q.—But as it is employed by medical writers, don't it mean that it don't come away? *A.*—I think some of the older medical writers employ the term of "suppressed menses" and "retention of the menses." There is the distinction.

Q.—They are all classed as amenorrhea, are they not? *A.*—Amenorrhea means no menstruation and etymologically it means that the menstrual fluid does not form.

Q.—Then you would not regard it as amenorrhea, if the menstrual fluid had formed, but was retained? *A.*—That is retention of menstruation.

Q.—And you would not regard that as amenorrhea? *A.*—No.

The witness then illustrated to the jury with a rubber tube the mechanics of flexion of the uterus and illustrated with a handkerchief and the aid of one of the members of the jury, the methods of treatment of flexions by shortening the ligaments.

Mr. Hough: *Q.*—Now, when you say that you take a tuck, do you mean that you cut out a section? *A.*—I do not mean that. I plicate it, bend it upon itself and stitch it under circumstances and by a method that makes it permanently short, normally short.

Q.—Now, you do not fix the womb in any other way? *A.*—In certain cases in which the convex, that is the big outer surface has become permanently elongated, I take out a little notch there, and shorten it so that the walls will be equalized.

Q.—In the womb itself? *A.*—In the womb itself.

Q.—There is no other fixation? *A.*—There are other methods of fixation, which I do not practice.

Q.—What are the methods of fixation which you do not practice? *A.*—Well, there are some practitioners, who sew the top of the womb fast to the anterior abdominal wall, I do not do that. The methods which I have indicated are those that I employ.

Q.—Now, is it not a fact that that method of shortening the ligaments has not been found to give satisfaction? *A.*—On the contrary, it has given very high satisfaction.

Q.—To all the practitioners, or only to yourself? *A.*—I am speaking for myself, and the general adoption of the practice by the profession, would indicate that it is generally satisfactory.

Q.—Has that operation a name? *A.*—It is known as the shortening of the round ligaments, or a shortening of the broad ligaments.

Q.—It is not named after an individual? *A.*—Well, the method of shortening the ligaments has been variously named. The original operation was known as the Alexander operation.

Q.—Well, has not that been generally abandoned? *A.*—Yes, because that is not the operation that I have described.

Q.—Well, what is the difference between the Alexander operation, and the operation you have described? *A.*—The Alexander operation consisted in making a little incision in either groin and trying to fish out the end of this elongated broad ligament and draw it up, but this gave the operator no opportunity to control the adhesions or to correct other associated conditions, and it has been found unsatisfactory and has been very generally abandoned by the profession.

Q.—Now, do you operate, or advise an operation in every case of retroflexion? *A.*—I do not.

Q.—What cases of retroflexion would you treat without operation? *A.*—Those that do not produce serious symptoms.

The witness testified that in cases which he examined and in which he found a retroflexed condition of the uterus not producing symptoms he would perform no operation. He described the symptoms of retroflexion.

Q.—Well, what would those symptoms be? *A.*—Symptoms of retroflexion, quite different from those which I have described being peculiar to these other conditions.

Q.—What would they be? *A.*—I was just about to tell you that they would be pressure upon the rectum, pressure upon the sacral nerves; pain in the back, inclined to be reflected down the legs; possibly some pressure against the bladder with a frequent desire to urinate, and there may be or may not be a leukorrheal condition. There is generally a good deal of tenderness all through that part of the body called the pelvis, and the patient would, in that condition, generally complain of pain upon any little jar or movement, any little violence transmitted to them. That is the general character—

Q.—Might there not also be pain during the menstrual period? *A.*—Yes, there might be pain during the menstrual period, and it might be very severe.

Q.—Might there also be a scanty menstruation? *A.*—Yes, there might, but it is not incompatible with that, but the tendency of retroflexion in its influence upon menstruation, is to produce the opposite condition of excessive flow.

Q.—Now, when a woman comes to you with any of those conditions, you make an examination, such as you have described, and reach the conclusion that those symptoms are due to retroflexion? *A.*—Yes.

Q.—And you find no adhesions and conclude that it is not an operative case, what is your treatment? *A.*—But, when she has these symptoms, I do conclude that it is an operative case.

Q.—What symptoms could a woman have from which you would conclude it was not an operative case? *A.*—If they do not produce any particular discomfort, if I can put her to bed, and permit the temporary congestion, which has come about as a result of this displacement, to disappear, and the tenderness thereby be overcome, she may possibly get up and be about and be very well, and not feel that an operation is necessary.

Q.—What medicines would you give in that case? *A.*—I think I would—the medicines that I would give would be local. I would give her a hot douche, and possibly apply some medicine locally to increase the watery flow from the pelvis. If she were constipated, as sometimes occurs, but not always, I would undertake to correct that condition by the administration of enemas, preferably. Sometimes I might think it wise to give a brisk laxative for a day, or a dose now and then, but not to be continued, and that is about the line of treatment. But the chief remedy is rest.

Q.—You would use no mechanical appliances at all? *A.*—I would not.

Q.—And by that process, the symptoms would disappear? *A.*—Yes, I want to revise my answer with respect to the use of no mechanical devices. I presume that the application of medicine locally, on what we call a tampon, which is a piece of lamb's wool, sterilized and saturated with the medicine we wish to apply, is in a certain sense mechanical, and does help to hold the uterus steady for the time being, and in that way assist in the recovery to that extent, yes, sir.

Q.—Do the symptoms in any case disappear without the flexion being entirely cured? *A.*—Very frequently.

Q.—Now, then, you would say that the flexion was not cured but the condition for which she was treated, was cured? *A.*—I would simply say that the symptoms had disappeared, the flexion still there.

Q.—It would not be necessary to do anything more, so far as the flexion is concerned? *A.*—Not in the absence of symptoms. It does not make much difference to a woman whether her womb is straight or bent, unless it is giving rise to a class of symptoms not taken into account, because I have had in mind in response to your opinion a class of symptoms which you would call acute. But if they cause sterility, inability to conceive, or conceiving, if they cause abortion, that is another class of symptoms that might be taken into account, and which would call for interference, even in the absence of symptoms that I have described. I had in mind simply acute conditions for which a woman ordinarily applies for relief and immediate treatment.

The further hearing of the cause was adjourned until 2 o'clock the same day, April 19, 1916.

April 19, 1916, Afternoon

TESTIMONY OF DR. C. A. L. REED (*continued*)

The Court met pursuant to adjournment. Dr. C. A. L. Reed resumed the stand.

CROSS-EXAMINATION BY MR. HOUGH (*continued*)

Dr. Reed stated that all cases of prolapse are operative if the object is to cure; if it is desired to relieve the woman of pain and other symptoms then many of the cases of prolapse get along without operation. By operation he does not include mechanical measures. In cases in which operation is not performed the uterus is given a temporary support, the patient is put to rest until congestion and tenderness are relieved. He stated that all deviations of the uterus are pathologic, whether accompanied by symptoms or not. He never does a ventral fixation because it is generally followed by traction and pain and does not correct the pathologic condition. He does not do suspensions of the uterus.

The witness defined a plastic operation and stated that operations for controlling the pathology of the uterus have not been found unsatisfactory. He did not know of any abnormal condition of the blood which might produce uterine displacements. Displacements of the stomach and of the intestines may cause displacements of the uterus.

Dr. Reed answered that alcohol in a medicine might have a different effect than the same amount of alcohol would have as a beverage, depending on the medicine with which the alcohol was associated.

Q.—To what extent would you say that would be the result? *A.*—Well, that would depend entirely upon the preparation or upon the combination of remedies. For instance, if they were to give a patient a large dose of bicarbonate of soda, or a large dose of any other alkali, so that it would be in the stomach at the same time that the alcohol was taken into the stomach, it would have a tendency to neutralize the acid forming proclivities of the alcohol, and you would modify its effects; which I presume is the physiological reason underlying the so-called high-ball.

Q.—Would it affect the toxic effect—the toxic action of the alcohol? *A.*—To a certain extent, yes.

Q.—Do you regard alcohol as a food in any sense? *A.*—In a very limited sense.

Q.—How limited? *A.*—Well, there are certain cases in which, as a carbohydrate it would occasion the more rapid evolution of heat, and, in that sense, it would possibly be construed as a food, and yet, even that lacks certain food qualities, because a food implies something that is tissue-forming in its tendency; and alcohol contains nothing of that character.

Q.—Up to what per cent. should it be regarded as a food, from any point of view? *A.*—I think that is totally impossible to express in terms of percentage.

Q.—Well, would you say that alcohol up to 20 per cent. would be regarded as a food? *A.*—Well, alcohol up to 20 per cent.—if that 20 per cent. were taken continuously, it would certainly not be a food; but it would be the very opposite of a food.

The witness stated that his views on alcohol were based on his clinical experience with it, and he described various

clinical tests which he has made. He does not know of the work of Atwater and Chittenden. Objection was made to the reading of statements from medical works to the witness and sustained by the court. The witness stated, after objection was overruled, that he does not know it as a fact that alcohol exists normally in the human organism and within proper limits is undoubtedly a food. It is his opinion that alcohol may not be very serviceable in fevers, and he does not prescribe it in "low conditions of fever, acute inflammation and depressing maladies of all kinds."

Dr. Reed stated that it is not a fact that "alcohol may be a stimulant or a sedative or a tonic or a digestive or an actual food, and that unless we run on into excess, no physical damage can be done to the tissues, and that its use could do no harm, in small quantities."

The only remedy for cancer known to the witness is surgical removal. He believes that cancer is a local disease, with a possibility of its being communicated through the blood to a site of development in some other locality, but it is generally carried through the lymphatic glands.

The witness believes that tonics given discriminatingly may increase the tone of the system, and that the knee-chest position and general medical and hygienic treatment may be of value in the treatment of uterine prolapse. He believes that many hemic drugs may be used in the treatment of anemia and amenorrhea.

Q.—And is it a fact that apiol is recommended as being able to produce the menstrual flow? *A.*—I don't recall that fact—the specific fact escapes me.

Q.—That is in your book, is it not? *A.*—I am not sure that it is. I don't recall.

Q.—Would you say it is not? *A.*—No, I would not say that it is not.

Q.—I will show you the statement in your book, to refresh your memory. *A.*—Yes.

(Mr. Hough hands book to witness).

The Witness:—It is there; and it is quoted as having been extolled by the French, and I put the statement in there for what it is worth.

Mr. Hough: *Q.*—What is apiol? *A.*—Well, it is as defined there. It is a preparation that—of vegetable origin, and is one with which I am totally unfamiliar.

Q.—Well, what kind of vegetable origin? *A.*—I don't recall just what it is, in that statement before you—I put that in as a quotation from the literature.

Q.—Is it a weed? *A.*—I think possibly it is.

Q.—And that preparation contains a large amount of alcohol, doesn't it? *A.*—It is described there. I have told you that I am personally unfamiliar with it. That is a quotation from French literature.

Q.—Do you mean you write in your book things you don't know anything about? *A.*—Whenever they come from a half way respectable authority, I put it into my book, as I have explained, that it is intended not as an expression of my individual views, but as an exposition of the subject at the moment of writing.

Q.—Is it a fact that the pain of dysmenorrhea is much relieved by drugs which are not strictly anodyne, but rather antispasmodic? *A.*—I would infer that a drug that is antispasmodic would have a tendency to relieve the condition of dysmenorrhea in certain cases.

Q.—Now, you are asked to assume this hypothetical medicine was antispasmodic; how then could you state it could not have any effect in any of the menstrual disturbances? *A.*—Well, in the dosage that was given, it was totally impossible for it to have had that effect, even assuming that it is the medicinal dose that is given—it was one-tenth of a dose.

Q.—How can you say that if you say you do not know anything about carduus benedictus, and are only asked to assume that it is antispasmodic? *A.*—Well, I am simply basing it upon the assumption that was given me.

After argument by attorneys as to the exact wording of the hypothetical question the witness was asked:

Q.—I say, if you had sufficient dosage of those two remedies, would you answer differently from the way you answered the hypothetical question on direct examination? *A.*—If it were an antispasmodic, and if it were given in an antispasmodic dose, it would relax the spasm, and, relaxing the spasm, would relieve the pain. That is the assumption.

Q.—Then you could not say that the medicine would be worthless, could you? *A.*—No—on the hypothesis as given; but it would be worthless in that dose of one-tenth of a grain, if eight grains were the medicinal dose.

The witness was asked concerning the general medical treatment of pelvic disease and its relation to the condition of the blood.

Q.—Doctor, you said you had prescribed compound spirits of ether, but had never prescribed Hoffmann's drops? *A.*—I understand that they are the same thing. I am sufficiently unfamiliar with the preparation that I did not understand for the moment that they are convertible terms.

Q.—You mean you are not familiar with something you have been prescribing? *A.*—I applied the term relating to the spirits—the sweet spirits of niter—for the moment. I give so comparatively few drugs, that these terms are not at once familiar to me.

Q.—You are primarily a surgeon? *A.*—Primarily.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

Mr. Scofield asked the witness two questions to which objections were made by the plaintiffs and sustained by the Court because they would open the book of Dr. Reed from cover to cover to the plaintiffs.

Mr. T. J. Scofield: *Q.*—Doctor, it has been said by Mr. Hough here that your name was presented to the Senate by the President of the United States for confirmation on an appointment to a certain position. What was that position? *A.*—That was a position in the so-called medical reserve corps of the United States Army, in connection with a large number of other surgeons in different parts of the country.

Q.—Then Mr. Hough asked you to state whether or not it was not true that your name was withdrawn, and was not therefore confirmed? *A.*—Yes, sir.

Q.—Will you please tell the jury under what circumstances that occurred, that your name was withdrawn by the President? *A.*—During a meeting of the Legislative Committee of the American Medical Association at Washington I had occasion to criticize the President, the then President of the United States who had made this nomination, for the attitude that he took in reference to questions arising about the pure food and drug act, which I was endeavoring to protect as best I could, and which I believe my friend, Mr. Hough, was antagonizing—

Mr. Hough:—What is that, Doctor?

The Witness:—The Pure Food and Drug Act.

Mr. Hough:—Excuse me; I was not; I was in favor of it.

The Witness:—And the—as a result of that criticism, the President was offended and withdrew the nomination.

RECROSS-EXAMINATION BY MR. HOUGH

Q.—Doctor, one minute. Sit down, please. The grounds for the President's withdrawal were filed by the President in the War Department, weren't they? *A.*—I have understood that he filed a memorandum with respect to it.

Q.—Didn't you see the memorandum, or a copy? *A.*—No.

Q.—Wasn't it put on the ground that there existed grave professional reasons rendering Dr. Reed unfit for the service, including untruthfulness? *A.*—No; not that I remember. I never saw that.

Q.—Did you never see that? *A.*—I never did.

Q.—Wasn't it published in all the papers at the time? *A.*—I didn't see it, if it was; and—whatever he might have said or done, it was on the heels of an adverse criticism of his position, and as a direct result of that criticism.

Q.—Do you know what the professional reasons were that the President named? *A.*—I do not.

Mr. T. J. Scofield:—I object to that, if the Court please.

THE COURT:—I do not see the importance of any of this.

Mr. Hough:—I would not have asked it, if Mr. Scofield had not asked for it.

Mr. T. J. Scofield: *Q.*—You were not a member of the Ananias Club, were you, Doctor, at that time?

The Witness:—No, no.

Mr. Walker:—He seems to have had a club by himself.

THE COURT:—It looks as if the President had the club.

Mr. Walker:—Well, a rose by any other name would smell as sweet.

TESTIMONY OF DR. WILLIAM E. KAY

Dr. William E. Kay was called as witness for the defendants.

DIRECT EXAMINATION BY MR. WALDO

Dr. William E. Kay testified that he resides in Maplesville, Alabama. He has been in practice since 1905 at several locations in the state of Alabama. He has had some personal experience with Wine of Cardui. He testified that he was willing to give to the counsel for the plaintiffs the name and addresses of the patients about whom he would testify.

A.—Well, this lady's name was—I will refer to her as A, Mrs. A., who was in a family way, and I had—and I, being the family physician, had the pleasure of visiting the family from time to time, during her conception; and she was using this tonic, as she termed it, Wine of Cardui, in order that she might have an easy labor at full term, as she expressed herself.

Q.—Was she using it under your directions? *A.*—No, sir.

Q.—Go ahead.

Mr. Walker:—Of course, this all goes in under the objection we have made to all this testimony?

THE COURT:—Oh, yes, certainly.

The Witness:—So at the expected full term, or when she was expecting—or she was threatening confinement, they called me in, of course, to wait on her; and, on arrival, and making an examination,

I found that she was in the first stages of labor; and she had a very tedious labor; I think I was with her from early in the morning until possibly 2 o'clock in the afternoon; and, even at that time I had to take the child with forceps.

As she approached the second stage of labor, she was seized with a convulsion, which we term a state of puerperal convulsion.

Q.—Explain to the jury what that means. *A.*—Well, that means that a patient, suffering from absorption of poisons that should have been eliminated by the bowels and kidneys, but which had been carried into the circulation and caused these poisons, these conditions which developed.

Q.—Now, go ahead, Doctor. *A.*—Of course, I immediately, having my instruments and everything already sterilized, applied them, as quickly as possible, and delivered the woman of the baby, which saved the baby's life.

Mr. T. J. Scofield:—Doctor, you will have to speak a little louder.

The Witness:—Which saved the baby's life, of course; and the mother just continued on in convulsions; at first, say about thirty minutes between the first convulsion and the second, after which they continued to come closer and closer together, until finally there was one constant convulsion; and you could not tell where one started and the other ended. In the meantime, I sent for consultation to come and assist me in the case, after she had been delivered.

Q.—Doctor, over how long a period had she taken Wine of Cardui? *A.*—Well, she had been taking it for about six months.

Q.—Six months, during her pregnancy? *A.*—Yes, sir.

Q.—Did she recover? *A.*—Yes, sir; she made an uneventful recovery; and is getting along nicely now.

In another case Mrs. F., whom he saw frequently during her pregnancy, as he was called in occasionally to relieve slight nervous spells, or constipation, he found that the patient had been using Wine of Cardui during her period of gestation. In the seventh month she went into convulsions, which he endeavored to relieve. He found that the patient was suffering from malaria. She was prematurely delivered of a child in about seven months and one week.

He was called in consultation with two other physicians to see a patient, Mrs. J., whom he found suffering with a profound case of hematuria, and in the 8th month of pregnancy. He found that she had been using Wine of Cardui for six or seven months. She would take two tablespoonfuls at a dose. The patient said she was taking three tablespoonfuls three or four times a day "because her mother-in-law had advised her to take it, that she would have an easy time at childbirth. That is what the literature said—is what she said." The witness testified that the physician attending the patient later informed him that the patient did not have an easy time at childbirth. On objection of the attorneys for the plaintiffs this statement was stricken out.

The witness testified that he had seen Mr. F. J., a colored man, living at Maplesville, drink Wine of Cardui quite a few times, as often as two or three times a week. He also saw a Mr. D., of Millport buy a bottle of Wine of Cardui, and drink it in the drug store. He seemed to be intoxicated shortly afterward. He also saw a Mr. A. J. R., of Inland, Ala., drink Wine of Cardui.

Mr. Waldo: *Q.*—Go ahead, Doctor, tell us about that case? *A.*—He was what you might call—what he really was—he would drink considerably, that man; and, at that time I kept a little shop there, I kept a kind of a drug department, a few little drugs in it, and carried some Wine of Cardui; and he would come by my office and get a bottle and drink part of it, every once in a while—on a few evenings. He did that on numerous occasions.

Q.—Well, how many occasions, Doctor? *A.*—Well, I might say on ten or fifteen—I might say on fifteen different occasions.

Q.—What effect did it have on him? *A.*—Well, he said that—

Q.—I don't want anything that he said. I want to know what you observed, Doctor? *A.*—It kind of looked like it intoxicated him a little bit. You could tell from his actions, you know—his general appearance, that he was feeling good.

He also saw a Mr. T., of Inland, Ala., drinking Wine of Cardui outside the drug store.

The witness testified that a Mrs. G., living at Randolph, Ala., who was a profound morphin habitué, came to him for treatment. Her history showed that for eight or nine years previous to her contracting the morphin habit she had taken Wine of Cardui regularly and increased the dose of a tablespoonful up to half a bottle.

"She said she got more relief out of one quarter of a grain of morphin than she did from half a bottle of the Wine of Cardui. That is why she discarded that and took up the morphin."

Mrs. P., of Aldrich, Ala., was another morphin habitué, whose clinical history revealed that for six or eight years previous to her taking morphin she was a constant user of Wine of Cardui. She began using it according to the directions, and later increased the dose until she took half a bottle. Neither of these patients was cured.

The witness had two or three cases of women who had been taking Wine of Cardui and consulted him in reference to it producing an abortion. A Mrs. F. C. had been taking it to produce a miscarriage.

Q.—She took it to produce a miscarriage or to prevent a miscarriage? *A.*—To produce it.

Q.—Well, go ahead? *A.*—That was her argument to me. She consulted me—or came to me and consulted me about it, with reference to it, and wanted to know what I thought about it; and I told her I did not know but very little about it. I asked her why she was taking it, and she said that the directions and the literature that came with it influenced her to take it for that purpose.

Q.—Did she say how much she had taken? *A.*—She had taken a tablespoonful every two hours.

Q.—Over how long a period? *A.*—Well, she had been taking it for a week.

Q.—A week? *A.*—Yes, sir, at that time.

An adjournment was taken until April 20, 1916, at 10 o'clock.

April 20, 1916, Morning

Court met pursuant to adjournment. Dr. William E. Kay resumed the stand for the defendants.

CROSS-EXAMINATION BY MR. WALKER

On cross-examination Dr. Kay was asked concerning the various locations in which he had resided since the date of his graduation. He named Aliceville, Birmingham and Inland, Ala. In Inland he practiced several years and conducted a drug store in which he carried pharmaceuticals with a few proprietaries, among the latter Wine of Cardui. From Inland he went to Fort Springs—a health resort—from there to Aldrich and from Aldrich to Maplesville, where he now resides. He came to Chicago three weeks previous to the date on which he testified. He had received a letter from the Secretary of the State Medical Society of Alabama. Later he communicated with Dr. Heizer. He is a member of his county and state society, and recently subscribed to THE JOURNAL. He met Dr. Heizer in Montgomery, Ala. The witness testified that his expenses are being paid and that he is to get a per diem beyond his expenses. He was then closely cross-examined concerning the cases which he treated and which were described in the direct examination. He was asked concerning the woman who developed eclampsia.

Q.—What is the cause of eclampsia? *A.*—That is a condition that comes about, as I understand it, from the absorption of poisons, certain toxins that should be cast out through the kidneys and be eliminated by the kidneys and bowels, from the fetus which is in utero gestation, during the time of pregnancy. These conditions that should be carried off and cast out through the kidneys and bowels, that should be eliminated, are being absorbed and carried into the blood as I understand it, and produce the poison.

Q.—Have you not learned as a physician that the cause of that disease is undiscoverable, that condition of eclampsia? *A.*—No, sir; I have not.

Q.—That is, that the cause is not known?

Mr. Locsch:—He has given the cause.

THE COURT:—He has answered it.

The Witness:—I just gave the cause now.

Mr. Walker: *Q.*—You have given that as your opinion of the cause? *A.*—Yes.

Q.—Well, these cases happen, do they not, when a woman has taken no medicine of any kind, cases of eclampsia? *A.*—I have not any history to that effect.

Q.—In your own experience? *A.*—In my experience.

Q.—Or from your reading? *A.*—No, sir; I have not.

The witness testified that he has treated approximately twenty cases of female disease a year. In the treatment of eclampsia he gave veratrum hypodermically, and salts to aid elimination. He has treated up to the present time perhaps two thousand patients in childbirth. The patient whom he saw with malarial hematuria he treated with calomel.

The witness was then cross-examined concerning Mr. D., whom he saw drink Wine of Cardui in Millport, while he himself was living at Fort Springs. Mr. D. drank Wine of Cardui in the drug store.

Q.—Now go ahead. He came in the drug store? *A.*—He came in the drug store there, and he was the man that drank. I knew him as being a habitual alcohol drinker before this time.

Q.—How long had you known him? *A.*—Oh, I had been knowing him since 1905.

Q.—Go ahead. *A.*—Well, he came in the drug store there, and was making some inquiry about some bitters and one stuff and another like that you know, and he said that—he asked me what the Wine of Cardui was good for. I told him that I did not know what it was good for, that I understood that it was recommended as being—very highly recommended at least, as a female tonic. Well, he says, "That is what I am looking for. I have had a female trouble now for 10 years." He bought a bottle, and drank about half of it right there in my presence.

Q.—Did you ever see him drink other than on that one occasion? *A.*—Yes, sir.

Q.—Before that time, or was this the first time? *A.*—That was the first time I ever saw him drink Wine of Cardui.

Q.—When did you ever see him drink Wine of Cardui at any other time? *A.*—After that?

Q.—Yes. *A.*—Some few days after that I saw him in a restaurant, he drank some.

Dr. Kay was then cross-examined concerning the latter incident. He stated that Mr. D. came into the restaurant, took from his pocket a carton containing Wine of Cardui, drank the contents of the bottle, put the bottle back in the carton and put it on the floor.

Dr. Kay was cross-examined concerning the drinking of Wine of Cardui by Mr. F. J., a colored man. Mr. F. J. was employed by Dr. Kay to take care of his garden and horses. Mr. F. J. drinks Wine of Cardui perhaps two or three times a week and the witness has seen him drink it frequently within the last eight months.

Q.—How many times do you say in a week you would see him drinking it back of your barn? *A.*—At least three times a week.

Q.—Did he take any particular day? *A.*—Not necessarily so.

Q.—Was it Tuesdays, Thursdays and Fridays, or Mondays, Wednesdays and Saturdays, those three days? *A.*—I suppose he drank it any time he felt like he wanted a toddy.

Q.—Did you observe which days? What do you say about which days it was? *A.*—No, I did not necessarily observe the days that he drank it.

Q.—Was it his habit to send for you when he wanted to take a drink of Cardui? *A.*—No, it was my habit though to go around and see that he was doing my work, currying off my horses—

Q.—And see that he was drinking?

Mr. Waldo:—Let him finish.

Mr. Walker: *Q.*—You took good care, did you, to see that he was drinking it at least during the last eight months? *A.*—I certainly wanted to see that he was straight when he was hitching up my horses, and driving my teams.

Q.—Since you met Heizer in the last eight months, didn't you want to see that he did drink Cardui? *A.*—No, but how could I help it.

Q.—Didn't you try to see to it, that he did drink Cardui? *A.*—No, sir.

Q.—Didn't you keep him on the job there, so that he could make money enough to get the Cardui? *A.*—Keep him on the job?

Q.—So that he could get enough to get Cardui? *A.*—Not necessarily.

Q.—That is, after you met Heizer I mean, within the last eight months. *A.*—He was working for me, before I ever knew anything about Mr. Heizer, or Dr. Heizer.

Q.—But I am talking about his drinking it three times a week for the last eight months? *A.*—That is the only time that he has been so closely associated in my business.

Q.—You saw that he did keep about as close to you as possible during this last eight months? *A.*—Sure, he did my office work, cleaning up my office.

Q.—Did it all the better I suppose on Cardui? *A.*—I don't know where he got his Cardui, I have not handled any of it since.

Q.—I suppose he did his work all right? *A.*—Oh, he got along, yes, somehow, most of the time.

Q.—Now, was this fellow a drinking man other than—I mean this J—, was he in the habit of getting drunk? *A.*—He would get on a drunk once in a while.

Q.—How long had you known him? *A.*—F. J.?

Q.—Yes. *A.*—I have known him off and on for four years.

Q.—Four years? *A.*—Yes, sir.

Q.—And you hired him knowing that he was a fellow that got drunk? *A.*—Well, when I hired him I did not know that he got drunk, but I found out afterwards that he did.

Q.—And you kept him during the last eight months? *A.*—Yes, sir.

Q.—And you kept him for the purpose, didn't you, of having him drink Cardui, knowing that he was a drunkard? *A.*—No, I did not keep him for that purpose.

Q.—After you met Heizer? *A.*—He worked for me nearly every year, ever since I have been at Maplesville, a few months at a time.

The witness then discussed the case of Mr. A. J. R., whom he saw drinking Wine of Cardui possibly 15 or 20 times during a year. Mr. A. J. R. first purchased the Wine of Cardui from Dr. Kay for his wife. The witness stated that Mr. A. J. R. would come into the drug store perhaps twice a week. When he purchased Wine of Cardui he would tip up the bottle and drink from it.

Q.—He took the bottle out of the carton and took the cork out, and drank another drink? *A.*—Yes, sir.

Q.—And then walked off with the bottle? *A.*—Yes, sir.

Q.—And he did that until you were out of Wine of Cardui, is that right? *A.*—Yes, sir; he did that.

Q.—When you sold all you had to Riley, you quit taking it? *A.*—I did not necessarily sell it all to him.

Q.—When you had sold it all to R—— you kept it till it was all gone—he came in, I suppose, twice a week until it was all gone? *A.*—He was in there oftener than that.

Q.—To drink Cardui, twice a week? *A.*—Yes, Cardui twice a week.

Q.—You sold it every time he wanted it? *A.*—Sure, that is what I had it for, to sell.

The witness then described the case of Mr. T., who was working for Mr. A. J. R.

Dr. K. was next cross-examined concerning two patients who were morphin habitués; the first—Mrs. C.

Q.—Did she come to your office? *A.*—Yes, sir.

Q.—As I understand you, she wanted you to abort her? *A.*—She came to my office—

Q.—To have an abortion performed? *A.*—To get advice with reference to—

Q.—In reference to an abortion? *A.*—With reference to taking Wine of Cardui to produce an abortion, don't get it wrong.

Q.—Did you tell her to get Wine of Cardui to produce an abortion? *A.*—I did not.

Q.—Did she have an abortion? *A.*—She had an abortion.

Q.—Did you abort her? *A.*—No, I did not.

Q.—How long after she first came to see you, was it that she had the abortion? *A.*—Had the abortion?

Q.—Yes. *A.*—It was about a week.

Q.—Did you attend her? *A.*—I did. She was flooding to death, nearly.

Q.—What? *A.*—She was flooding from the aborted condition, and had to have a physician to stop the hemorrhage.

Q.—Did you make an examination of her when she called at your office? *A.*—I did not.

Q.—You don't know what the local condition was then? *A.*—No, sir; I did not make any examination.

Q.—How long was it after her call at your office, that you went to see her? *A.*—After she had called at my office?

Q.—Yes. *A.*—About a week I should say.

Q.—Had you seen her in the meantime at all? *A.*—I had seen her passing about; yes, sir.

Q.—That is, on the streets? *A.*—Yes, sir.

Q.—Up till what time before you were called? *A.*—Up till a day or two, possibly a couple of days before I was called to see her.

Q.—She told you that she was taking Wine of Cardui, to produce an abortion? *A.*—She did.

Q.—And that she learned from the literature of Wine of Cardui, that it would have that effect? *A.*—Have that effect, that is what she said.

Q.—Did she tell you where the literature was of the Chattanooga Medicine Company, that indicated that Wine of Cardui was good to produce an abortion? *A.*—She did not.

Q.—Did you tell her that Wine of Cardui would produce an abortion? *A.*—I did not.

Q.—Did you tell her to take it? *A.*—I did not.

Q.—What did you tell her when she told you she was taking Wine of Cardui to produce an abortion? *A.*—I told her that I knew nothing about Wine of Cardui, and therefore I would not recommend it for what she—

Q.—To produce an abortion? *A.*—For what she proposed to use it for.

Q.—What did you recommend to produce the abortion, if you would not recommend Wine of Cardui? *A.*—I did not recommend anything.

Q.—What? *A.*—I did not recommend anything.

Q.—But a week after you had told her that you would not recommend Wine of Cardui to produce an abortion, she had one? *A.*—She aborted just the same, a week later.

Q.—You don't know whether she acted on your advice or not? *A.*—No, sir; I do not.

The second habitué was accustomed to take morphin by the mouth. The witness stated that while he kept the store at Inland he purchased perhaps two orders of Wine of Cardui consisting perhaps in all of two and one-half dozen bottles.

REDIRECT EXAMINATION BY MR. WALDO

The witness testified that he was not the only person in Inland who sold Wine of Cardui.

RECROSS-EXAMINATION BY MR. WALKER

The witness testified that the Commissary of the Fairchild Coal Co. also sold Wine of Cardui at Inland.

Further hearing of the case was then adjourned until 2 p. m. of the same day.

(To be continued)

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CHAULMOOGRA OIL—LEPROSY

To the Editor:—Please inform me what articles have appeared in THE JOURNAL on the use of chaulmoogra oil; also, the issues containing the symposiums on leprosy.

E. A. FOLEY, M.D., East Moline, Ill.

ANSWER.—The following is a list of references on these subjects, including the two issues of THE JOURNAL containing symposiums:

Blue, Rupert: The Public Health Aspects of Leprosy in the United States, THE JOURNAL, Sept. 20, 1913, p. 943.
Boeckmann, Eduard: Clinical Aspect of Leprosy, THE JOURNAL, Sept. 20, 1913, p. 946.
Dyer, Isadore: The Dermatologic Aspects of Leprosy, THE JOURNAL, Sept. 20, 1913, p. 950.
Hassin, G. B.; Burke, Gordon, and Nuzum, John: Leprosy or Syringomyelia? THE JOURNAL, July 17, 1915, p. 235.
Montgomery, D. W.: Illustrations of the History of Leprosy, THE JOURNAL, Sept. 11, 1915, p. 927.
Morrow, Howard, and Lee, A. W.: Symptoms and Diagnosis of Leprosy, THE JOURNAL, Sept. 11, 1915, p. 931.
Chipman, E. D.: The Etiology and Treatment of Leprosy, THE JOURNAL, Sept. 11, 1915, p. 934.
Heiser, V. G.: Chaulmoogra Oil in Treatment of Leprosy, *New York Med. Jour.*, Feb. 12, 1916; abst., THE JOURNAL, March 4, 1916, p. 773.

SHOES FOR LOCOMOTOR ATAXIA

To the Editor:—I understand that it is possible for persons afflicted with locomotor ataxia to procure shoes which enable them to walk. According to my information these shoes are very expensive, costing as much as $1,500. I should like to know just where such shoes may be procured, and any other facts regarding them which you will be able to give me.

J. L. P.

ANSWER.—We are unable to find any reference to shoes of the type described by our correspondent. Perhaps he has in mind the Frenkel reeducation method for the teaching of walking to persons afflicted with locomotor ataxia. An article somewhat on this subject is that by Schurig, E. F.: Slippers Which Facilitate Climbing Stairs, *München. Med. Wchnschr.*, Dec. 26, 1911; abstr., THE JOURNAL A. M. A., Feb. 3, 1912, p. 383.

ALANT-CAMPHOR OF INULIN

To the Editor:—Recently a statement has appeared to the effect that alant camphor of inulin is fatal in solution of 1: 10,000 to the bacillus of tuberculosis. Has that statement been substantiated?

J. TRACY MELVIN, M.D., Portersville, Calif.

ANSWER.—Alantol or alant-camphor occurs in minute quantity in the fresh tubers of *Helenium inula*. We are unable to find any references to its use in the treatment of tuberculosis or to the fact that it possesses any bactericidal action.

MEDICINE AS A CAREER

To the Editor:—I have been asked to address a college Young Men's Christian Association on the subject "Medicine as a Profession." Will you kindly suggest something that I might read to help me in preparing this talk?

R. M. W., M.D., —.

ANSWER.—A list of references to articles on "Medicine as a Career" was published in THE JOURNAL, March 4, 1916, p. 760.

Housing and Health.—*Health News*, issued by the United States Public Health Service, April 19, announces that plans have been completed for the erection of a series of model homes in the city of Washington to demonstrate the relationship between good housing and good health. They are to be known as the Ellen Wilson Homes and are not an experiment, but a demonstration. Congress has enacted a law which goes into effect July 1, 1918, by which all alley buildings in the district must cease to be used for dwelling purposes. Congress, in its act incorporating the Ellen Wilson Homes, limited the dividends to 5 per cent. net, but this enterprise will yield a far greater dividend, not in cash, but in satisfaction because of needed work well done.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
FLORIDA: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.
GEORGIA: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.
IOWA: Iowa City, June 8-10. Sec., Dr. Guilford H. Sumner, State House, Des Moines.
KANSAS: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.
KENTUCKY: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.
LOUISIANA: New Orleans, June 8-10. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.
MICHIGAN: Detroit, June 1-3; Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, June 6-9. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.
MISSISSIPPI: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.
MISSOURI: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.
NEBRASKA: Lincoln, June 8-9. Sec., Dr. H. B. Cummins, Seward.
NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.
NEW YORK: Albany, Buffalo, New York and Syracuse, May 16-19. Sec., Mr. Harlan H. Horner, Chief Examinations Division, Educational Bldg., Albany.
OHIO: Columbus, June 6-9. Sec., Dr. George H. Matson, State House, Columbus.
SOUTH CAROLINA: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
VIRGINIA: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.
WYOMING: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

Alabama January Report

Dr. W. H. Sanders, secretary of the Alabama State Board of Health, reports the written examination held at Montgomery, Jan. 11-14, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 29, of whom 9 passed and 20 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Birmingham Medical College	(1914) 75; (1915) 75, 75.1,	77.3
Tulane Univ. of Louisiana	(1907) 83.4; (1911) 77.6; (1915)	82.5
University of Tennessee	(1914)	79.9
Vanderbilt University	(1912)	79.8
FAILED		
Birmingham Medical College	(1914) 67.4, 70.1; (1915) 41.8, 54.8, 64, 66.5, 67.4, 68.9, 71.3	
Howard University	(1914)	*
Chicago College of Med. and Surg.	(1910) 64.9; (1914)	54.6
Jefferson Medical College	(1912)	70.7
Meharry Medical College	(1912) 55.6; (1915) 60.3,	72.6
Memphis Hosp. Medical College	(1911)	55.3
University of Tennessee	(1915)	56.7
Vanderbilt University	(1914) 69.1; (1915)	73

* No grade given.

Missouri Reciprocity Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports that 33 candidates were licensed through reciprocity from Aug. 1, 1915, to Jan. 1, 1916. The following colleges were represented:

College	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1902)	Mississippi
Chicago College of Medicine and Surgery	(1913)	Illinois
College of Physicians and Surgeons, Chicago	(1904)	Illinois
Rush Medical College	(1912)	Illinois
Indiana University	(1907)	Indiana
College of Physicians and Surgeons, Keokuk	(1878)	Iowa
Iowa College of Medicine, Eclectic	(1883)	Iowa
College of Physicians and Surgeons, Kansas City	(1904)	Kansas
University of Kansas	(1912) (1914, 2)	Kansas
Kentucky School of Medicine	(1897)	Kentucky
Southwestern Homeo. Med. Coll. and Hosp.	(1905)	Colorado
University of Louisville	(1882)	Kansas
Tulane University of Louisiana	(1913)	Louisiana
College of Physicians and Surgeons, Baltimore	(1907)	Penna.
Ensworth Medical College	(1907) (1911)	Oklahoma
Kansas City Hahnemann Med. Coll.	(1907) (1912) (1914)	Kansas
Kansas City Medical College	(1904)	Kansas
St. Louis University	(1906) (1911)	Illinois
University Medical College, Kansas City	(1904) (1908)	Kansas
	(1913)	Oklahoma
University of Buffalo	(1879)	California
Starling Medical College	(1903)	W. Virginia
Jefferson Medical College	(1902)	Louisiana
University of Pennsylvania	(1905)	Penna.
Meharry Medical College	(1903)	Kentucky
University of Tennessee	(1892)	Indiana

Book Notices

THE ENDOCRINE ORGANS. An Introduction to the Study of Internal Secretion. By Sir Edward A. Schäfer, LL.D., D.Sc., M.D., Professor of Physiology in Edinburgh University. Cloth. Price, $3.50 net. Pp. 156, with illustrations. New York: Longmans, Green & Co., 1916.

This book comprises the course of Lane medical lectures, given at Stanford University in 1913, revised and brought up to date. It aims to "supply a concise account of our present knowledge for the benefit of students and practitioners who may be desirous of obtaining more information regarding the internal secretions than is afforded by the ordinary textbooks of physiology, but have not the time or opportunity to peruse extensive monographs or consult original articles." There are six chapters on the thyroids and parathyroids, one on the thymus, three on the suprarenals, five on the hypophysis, one on the pineal gland, one on the pancreas and the intestinal mucosa, and finally three chapters on the ovaries and testes. Professor Schäfer is one of the pioneers in the research on internal secretion, and this book is, on the whole, the best summary of this subject that has so far appeared in the English language. It is in most cases uptodate, and conflicting views are analyzed with admirable lucidity. It is to be regretted that Dr. Schäfer did not include references at least to the most important papers on the various glands. Such references would have been useful for those who do not have access to the larger works of Biedl and of Gley, or the special monographs on individual glands. But despite this omission, the book will be helpful to all who aim to keep abreast with the progress in this important field of biology and medicine.

MANUAL OF VITAL FUNCTION TESTING METHODS AND THEIR INTERPRETATION. By Wilfred M. Barton, M.D., Associate Professor of Medicine, Medical Department, Georgetown University. Cloth. Price, $1.50 net. Pp. 255. Boston: Richard G. Badger, 1916.

The author has compiled the various tests for determining the efficiency of vital organs—that is, the liver, kidneys, pancreas, heart and ductless glands. He has omitted those of the eye, ear, nervous system, etc. In his consideration he states first the various functions which these vital organs are supposed to fulfil, and then gives in brief the tests which have been evolved by different experimenters. Following this discussion is a consideration of the literature on the subject, indicating by reports of results with the test the extent to which it may be depended on. The author has thoroughly considered the literature, and points out the advantages of these tests from a medical and surgical standpoint. As might be expected, the work on functional tests of the ductless glands is not so comprehensive as that on the larger organs which are considered, nor is there available the clinical confirmation as to the value of these tests. For practically all of them the statement is made that time alone will show the possibilities of their use in the treatment of disease. Such a compilation as that which Dr. Barton has made has certainly been needed. The numerous experimental studies which are now being conducted in these fields will no doubt make repeated revisions of the book necessary during the next few years.

CHANGES IN THE FOOD SUPPLY AND THEIR RELATION TO NUTRITION. By Lafayette B. Mendel, Professor of Physiological Chemistry in the Sheffield Scientific School of Yale University. Cloth. Price, 50 cents. Pp. 61. New Haven: Yale University Press, 1916.

The author discusses the production of foodstuffs, methods of preservation and conservation, and the relative value of various elements in the diet. Of special value is his consideration of customs in diet, in which he calls attention to the increasing use of fresh fruits and the physiologic basis for it. He refers also to the increasing use of fats and the decreasing use of alcohol. In the last portion of the book, which concerns the changing of social and industrial conditions, Professor Mendel considers recent discoveries anent the relation of the food supply to the war, the importance of the vitamins, and the application of science to the kitchen.

Medicolegal

Revocation of License for Wholesaling Prescriptions for Whisky

(*State ex rel. Conway vs. Hiller et al.* (*Mo.*), *180 S. W. R. 538*)

The Supreme Court of Missouri affirms in this proceeding against the members of the state board of health a judgment sustaining the action of the board in revoking the relator's license to practice medicine and surgery in Missouri for ten years in pursuance of its statutory power to revoke licenses for unprofessional or dishonorable conduct. It is stated in the opinion in the case that the complaint alleged, and the evidence showed, that the relator, in a local option town and county, was engaged in the wholesale business of filling out blank prescriptions for whisky alone, to be used as a beverage, by inserting in these blank prescriptions the names of purchasers, and signing his own name thereto, as a physician, charging and receiving 25 cents for each of the prescriptions, which were sold largely to negroes. While he might have been successfully prosecuted under the Missouri statute imposing a fine on any physician, or pretended physician, who shall make or issue any prescription to any person for intoxicating liquors in any quantity, or for any compound of which such liquors shall form a part, to be used otherwise than for medicinal purposes, etc., it did not militate in the least against the right of the state board of health, under the circumstances detailed in the record, to revoke his license. It needs no citation of authorities to demonstrate that the relator's conduct aforesaid, as disclosed by the undisputed facts in the record, was both unprofessional and dishonorable.

Injury to Undiseased Parts in Performance of Operations—Evidence

(*Evans vs. Roberts* (*Iowa*), *154 N. W. R. 923*)

The Supreme Court of Iowa affirms a judgment in favor of the plaintiff, a child, conditioned on consent being given to a reduction of the judgment from $1,100 to $750, for an injury to her tongue in an operation for the removal of adenoids. The court says that the family physician, who thereafter attended the plaintiff, described what was taken off as a small piece, beginning near the point of the tongue and extending a half or three-fourths inch around on the left side or edge. It was also shown that there were a few words, especially those beginning with "t" and "th," which the plaintiff was unable to speak as clearly or plainly as she could before the injury, and the tongue itself was slightly shortened and scarred. This was not the ordinary case in which a practitioner is sought to be charged with liability for alleged improper treatment of some bodily ailment or infirmity. The defendant's negligence, if any, was in failing to take due care to avoid injury to the undiseased parts in the vicinity of which the operation was performed; and while it might be true that, had the operation on the adenoids been unsuccessful and disappointing, no inference of negligence or want of skill would arise therefrom, it did not follow that this rule applied with the same force to an injury done by him to sound and undiseased parts of the plaintiff's person, which he was not called on to treat and did not pretend to treat. If a surgeon, undertaking to remove a tumor from a person's scalp, lets his knife slip and cuts off his patient's ear, or if he undertakes to stitch a wound on the patient's cheek, and by an awkward move thrusts his needle into the patient's eye, the charitable presumptions which ordinarily protect the practitioner against legal blame where his treatment is unsuccessful are not here available. It is a matter of common knowledge and observation that such things do not ordinarily attend the service of one possessing ordinary skill and experience in the delicate work of surgery. It does not need scientific knowledge or training to understand that, ordinarily speaking, such results are unnecessary, and are not to be anticipated if reasonable care is exercised by the operator. When they do happen, then proof of other facts and circumstances having any fair tendency to sustain the charge of

negligence will be sufficient to take the question to the jury; and this may be true, even though, if the alleged negligence pertained solely to the treatment of the diseased parts, the court might be inclined to dispose of it as a matter of law. The defendant having stated at the time that the "gag slipped," the jury, in the absence of other explanation, might naturally and properly infer that he failed properly to fit and adjust it for its intended purpose. Again, if the father of the child was to be believed, the defendant pulled the curet from the child's mouth with a more or less sudden and violent jerk, which was scarcely consistent with care to avoid injury of this kind to his patient, and that the effect of such violence was seen, not only in the wounded tongue, but also in a bruised and lacerated mouth as well. This was ample to take the question of negligence to the jury. Nor can it be said that negligence in cases of this nature can be established only on the testimony of experts. The jury here did not have to consider whether the method of the defendant in removing the adenoids was correct or scientific, but whether the unintentional wounding of the plaintiff's tongue was occasioned by lack of reasonable care on his part. This, it would seem very clear, involved no question of science, or necessarily of expert knowledge. Moreover, there was no error in permitting a specialist in this class of cases to describe the methods and instruments ordinarily employed in the removal of adenoids from the throat of a child and to put in evidence a gag and a curet as specimens of the instruments so used. Damages in such cases, in which no element of wilfulness or recklessness is shown, ought to be strictly compensatory, and not punitive.

Waiver of Privilege by Delay in Objecting to Questions

(Burke vs. Chicago & N. W. Ry. Co. (Minn.), 154 N. W. R. 960)

The Supreme Court of Minnesota says that the most important and difficult question before it in this personal injury case was whether or not the physician who first examined and treated the plaintiff, and who was called as a witness by the defendant, was properly permitted to testify, over the objection of the plaintiff that the testimony was privileged, to an admission made by the plaintiff as to a physical ailment existing prior to the accident. A majority of the court is of the opinion that the plaintiff had previously waived his right to restrict the physician in the giving of his testimony; that when a question is asked a physician, necessarily calling for testimony which is privileged under the statute, and a fair opportunity is given the plaintiff to make an objection, he must make it then or lose his right to object afterward during the trial. This gives a definite working rule, easily followed and easy of application. A minority of the court does not agree with the conclusions stated.

Society Proceedings

COMING MEETINGS

American Medical Association, Detroit, June 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Proctologic Society, Detroit, June 12.
American Therapeutic Society, Detroit, June 9-10.
Conference of State and Prov. Boards of N. A., Washington, May 16-17.
Connecticut State Medical Society, Bridgeport, May 17-18.
Illinois State Medical Society, Champaign, May 16-18.
Maine Medical Association, Portland, June 7-8.
Massachusetts Medical Society, Boston, June 6-7.
National Association for Study of Epilepsy, Detroit, June 16.
Nebraska State Medical Association, Omaha, May 23-25.
New Hampshire Medical Society, Concord, May 16.
New Jersey Medical Society, Spring Lake, June 20-22.
New York State Medical Society, Saratoga Springs, May 16.
Ohio State Medical Association, Cleveland, May 17-19.
Rhode Island Medical Society, Providence, June 1.
South Dakota State Medical Association, Aberdeen, May 23-25.
Western Roentgen Society, St. Louis, June 9-10.
West Virginia State Medical Association, Wheeling, May 16-18.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

May, XI, No. 5, pp. 309-404

1 *Acidosis Occurring With Diarrhea. J. Howland and W. M. Marriott, Baltimore.
2 *Studies in Metabolism of Children. Excretion of Creatinin and Creatin in Acute Nephritis. I. S. Cutter and M. Morse, Omaha.
3 *Id. Creatin Retention in Marasmus. I. S. Cutter and M. Morse, Omaha.
4 Two Cases of Obstetric Paralysis Involving Only Musculospiral Nerve. L. H. Smith, Washington, D. C.
5 Permeability of Gastro-Enteric Tract of Infants to Undigested Protein. O. M. Schloss, New York, and T. W. Worthen, Hartford, Conn.
6 *Experiences With Ethylhydrocuprein in Treatment of Measles, Scarlet Fever and Other Infections. A. D. Hirschfelder and F. W. Schlutz, Minneapolis.
7 Case of Prolonged Anuria Following Scarlet Fever With Few Symptoms. F. E. Clough, Lead, S. D.

1. **Acidosis with Diarrhea.**—Howland and Marriott give in detail their observations which seem to show that the hyperpnea in many cases of severe diarrhea is associated with, and dependent on, the presence of acidosis. The presence of the acidosis was confirmed by determining a lowering of the carbon dioxid tension of the alveolar air, by an increase in the hydrogen ion concentration of the blood serum, by a diminution of the alkali reserve of the serum, by an increase in the amount of alkali required to alter the reaction of the urine (alkali tolerance) and by a diminution of the combining power of the hemoglobin with oxygen. It is shown that the administration of sodium bicarbonate will often bring about a cessation of the hyperpnea and cause the laboratory tests to give the results that are found with normal infants. The acidosis is not due to the presence of acetone bodies. It has not been demonstrated that it is due to loss of base. It is probable that it is due to deficient excretion of acid phosphate by the kidneys.

The authors state that the excessive diarrhea should be prevented, if possible, by opium in some form, such as paregoric, preferably in small doses, frequently repeated, to be reduced or stopped when the evacuations diminish in frequency or copiousness. Water must be given freely by mouth, if possible; if vomiting prevents this, as it frequently does, it must be given by rectum, subcutaneously or intravenously. When the presence of the acidosis is determined, alkalies must be administered promptly, until the reaction of the blood is again normal. The authors have used sodium bicarbonate for this purpose. Vomiting often prevents the administration by mouth, and absorption by the bowel is unreliable in the presence of diarrhea. The soda may then be given subcutaneously or intravenously. When a sufficiently large vein can be found, intravenous administration is the method of choice, even if there is no vomiting. Immediate action can thus be obtained.

The strength of the solution for intravenous use is 4 per cent. Depending on the size of the infant, from 75 to 150 c.c. of solution should be given and repeated in three hours if the hyperpnea does not cease. A large amount of alkali is required, for not only is the alkalinity of the blood reduced but also that of all the tissues of the body. After one or two intravenous injections, the soda should be continued by mouth in doses of 1 to 3 gm. every two or three hours until the urine is alkaline to litmus. In all cases of severe diarrhea, even though there are no evidences of acidosis, the authors deem it advisable to use sodium bicarbonate until the urine is alkaline. Its administration may prevent the development of acidosis.

2. **Excretion of Creatinin and Creatin in Acute Nephritis.**—The data derived from a study of two children aged 5 and 13, whose cases were followed for periods of thirty-five days and ten days, respectively, are presented by Cutter and Morse. In both cases, especial care was given to the collec-

tion of the daily twenty-four hour specimens of urine. The diets in each case were practically creatin and creatinin in calories. The most conspicuous feature of the curves of excretion of both constituents and in both cases was the wide variation from day to day. Moreover, this variation, which approaches a rhythm, is independent of all known concomitant factors, such as food, temperature, etc. It appears that a threshold exists which, on being reached, leads to excretion of the creatin and creatinin. Retention in the sense of almost if not quite total suppression of excretion of these components does not exist for a period of more than twenty-four hours. In fact, there is a negative balance in every instance in which a period of one week or over is considered. The curves exhibit no correlation between the behavior of creatinin and that of creatin. It was impossible to determine anything which might suggest an origin of one from the other.

3. **Creatin Retention in Marasmus.**—In the case presented by Cutter and Morse there is a clear lowering of creatin excretion during a long period of loss in body weight. Vomiting occurred after each intake of food per os, due, apparently, to pyloric spasm and this condition did not cease entirely after the growth curve began to rise, following the use of mother's milk.

6. **Ethylhydrocuprein Treatment of Measles, Scarlet Fever,** Etc.—Observations made by Hirschfelder and Schultz on scarlet fever gave negative results. Patients were treated with ethylhydrocuprein, in capsules, in doses of 0.1 to 0.5 gm., three times a day, according to the age of the patient. In the seven treated cases, the fever and acute symptoms showed an average duration of nine days, while in the seven untreated cases occurring at the same time, the average duration was 7.4 days. Eleven unselected cases of measles were treated and showed an average duration of 4.3 days, while among ten unselected cases occurring under the same circumstances the average duration was eight days. Moreover, all the treated cases were free from complications, while in the untreated there were six cases of severe complications among the sixteen consecutive cases.

American Journal of Public Health, Concord, N. H.

April, VI, No. 4, pp. 307-430

8 Recent Advances in Knowledge of Infectious Diseases. A. Arkin, Morgantown, W. Va.
9 Tests of New Process of Sewage Purification With Grease Recovery and Apparent Profit. R. S. Weston, Boston.
10 What Campaign Against Venereal Disease Demands of Hospitals and Dispensaries. M. M. Davis, Jr., Boston.
11 Municipality and Venereal Disease Problem. G. W. Goler, Rochester, N. Y.
12 Sewage Problem in Small Towns. P. Hansen.
13 Disinfection as Factor in Control of Communicable Diseases. B. F. Knause, New York.
14 Commission Supervision of Industrial Hygiene. W. D. Yaple.
15 Colon Bacteria and Streptococci and Their Significance in Milk. L. A. Rogers, W. M. Clark and A. C. Evans, Washington, D. C.
16 Public Health Publicity; Art of Stimulating and Focusing Public Opinion. E. A. Moree, New York.

Boston Medical and Surgical Journal

April 27, CXXIV, No. 17, pp. 591-632

17 Chronic Backache. Report of Cases. H. W. Marshall, Boston.
18 Four Cases of Fracture of Lumbar Vertebrae and Transverse Processes. J. W. Sever, Boston.
19 Occupation as Remedial Factor in Hospitals for Mentally Sick. E. L. Haines, Boston.
20 Alcohol in Relation to Mental Disease. A. J. Rosanoff, New York.
21 Cerebral Syphilis; Method of Treatment by Prolonged Intraspinal Injection of Serum Under High Pressure. J. B. Ayer, Boston.

California State Journal of Medicine, San Francisco

April, XIV, No. 4, pp. 127-168

22 Cases of Malignant Testicle. W. P. Willard, San Francisco.
23 Water Borne Epidemic of Typhoid at Santa Barbara. J. C. Geiger, Berkeley.
24 Experiences With Roentgen Rays in Gynecologic Practice. H. F. Kreutzmann, San Francisco.
25 Botulism in California. E. C. Dickson, San Francisco.
26 Diagnosis of Malaria. J. R. Snyder, Sacramento.
27 Arthroplasty of Elbow. Report of Case. R. Brown, Santa Barbara.

Colorado Medicine, Denver

April, XIII, No. 4, pp. 103-134

28 Symptoms and Surgical Management of Acute Suppurative Otitis Media. J. J. Pattee, Pueblo.
29 Peripheral Facial Paralysis. G. A. Moleen, Denver.
30 Colloid Chemistry in Its Relation to Medicine. P. Hillkowitz, Denver.
31 *Lange's Colloidal Gold Reaction. W. W. Williams and W. Burdick, Denver.

31. **Lange's Colloidal Gold Reaction.**—The material on which this report by Williams and Burdick is based consists of 263 gold reactions with the spinal fluids from 184 different individuals. In nearly all of the cases a Wassermann test was also made on the blood serum. The cases were classified into four main groups, based on the clinical diagnosis. The miscellaneous group comprises 96 tests on 79 individuals. About one-half of the fluids were obtained from presumably normal persons. In none of twelve cases of tertiary syphilis were there any evident clinical signs of involvement of the central nervous system. However, eight of the fluids gave reaction in the syphilitic zone. One gave a curve very suggestive of paresis, but was not verified clinically. The other positive curves, and one of two fluids from secondary syphilis, were much less marked and a doubt existed what significance should be attached to them. All of these cases gave a positive blood Wassermann reaction and five of them also gave a positive fluid Wassermann. Among seven cases giving a syphilitic history, but apparently cured, three gave a positive blood Wassermann only with the cholesterinized antigens and two a positive fluid Wassermann. These two fluids presented increased globulin, cell counts of 4 and 36, and both gave syphilitic zone gold reactions. Cases of tuberculous and epidemic cerebrospinal meningitis gave similar gold curves. The maximal color changes always occurred in the higher dilutions, to the right of the center line.

Two cases of epilepsy gave normal curves. A third, however, gave a distinct syphilitic curve, with increased globulin and a positive fluid Wassermann. The blood Wassermann was negative. Under antisyphilitic treatment this patient has greatly improved. The curve from a case of disseminated sclerosis was normal; with the other, the curve was in the paretic zone, and gave positive globulin and Wassermann tests. The fluid from a uremic case gave a marked syphilitic curve, also, both the blood and fluid Wassermann reactions were positive and the fluid contained an increased amount of globulin. The curves from cases of dementia praecox, brain tumor and morphinism were normal. The remaining 38 fluids in this group all gave negative Wassermann and globulin tests; the gold curves, were also all within normal limits, by which the authors mean that the greatest color change never exceeded violet or 2. The general paresis group consists of 52 examinations on 46 cases. Nearly all the fluids in this group produced very intense and uniform reactions, characterized by complete precipitation of the gold in the first four to six dilutions causing a clear, colorless solution. There were 87 examinations of 41 tabetic fluids and 28 tests on 18 cases of cerebrospinal syphilis. All of the reactions were characterized by producing their maximal color changes in the third, fourth and fifth tubes; that is, in the syphilitic zone. In the vast majority of the tabetic reactions the contents of the first two or three tubes became a curious color described as an odd shade of pink containing brick dust. This color has appeared so constantly that the authors feel justified in attaching diagnostic importance to it.

Canadian Medical Association Journal, Toronto

April, VI, No. 4, pp. 289-384

32 Effects of Wet and Cold; Trench Feet. F. M. Bell, Ottawa, Ont.
33 Provincial Health Act; Its Merits and Defects. T. H. Whitelaw, Edmonton, Alberta.
34 Paralysis From Fright. R. D. Rudolf, France.
35 Cancer of Stomach and Pellagra in Same Patient. F. W. Rolph, Toronto.
36 Sarcoma of Intestines in Child Seven Years of Age. L. S. Mackid, Calgary.
37 Number One Canadian General Hospital as Part of Canadian Medical Organization in France. A. M. Forbes.

Florida Medical Association Journal, Jacksonville

April, II, No. 10, pp. 289-320

38 To Prevent Nervousness in Children. T. A. Williams, Washington, D. C.
39 Significance of Differential Blood Count. M. P. DeBoe, Cocoa.
40 Neurasthenia; Symptoms, Diagnosis and Treatment. L. H. Martin, Melbourne.
41 Sciatic Neuritis; Analysis of Typical Case. H. Crenshaw, Atlanta, Ga.
42 Alcoholic Gastritis. G. M. Niles, Atlanta, Ga.
43 Kidney Disorders of Childhood. J. H. Fellows, Pensacola.
44 Roentgen Ray Therapy. E. T. Campbell, Starke.
45 Case of Absence of Vagina and Uterus. E. W. Warren, Palatka.

Indiana State Medical Association Journal, Fort Wayne

April, IX, No. 4, pp. 135-178

46 *Toxemias of Pregnancy. C. E. Ferguson, Indianapolis.
47 Painless Childbirth. L. Burkhardt, Indianapolis.
48 Cesarean Section in Conservative Obstetrics. G. B. Jackson, Indianapolis.
49 Effect of Toxemia of Pregnancy on Newborn. H. F. Beckman, Indianapolis.

46. Abstracted in The Journal, Nov. 20, 1915, p. 1847.

Journal of Experimental Medicine, Baltimore

May, XXIII, No. 5, pp. 563-701

50 Bactericidal Properties of Quaternary Salts of Hexamethylenetetramin. Problem of Chemotherapy of Experimental Bacterial Infections. W. A. Jacobs, New York.
51 *Id. Relation Between Constitution and Bactericidal Action in Substituted Benzylhexamethylenetetraminium Salts. W. A. Jacobs, M. Heidelberger and H. L. Amoss, New York.
52 Id. Relation Between Constitution and Bactericidal Action in Quaternary Salts Obtained From Halogenacetyl Compounds. W. A. Jacobs, M. Heidelberger and C. G. Bull, New York.
53 *Protection of Pathogenic Micro-Organisms by Living Tissue Cells. P. Rous and F. S. Jones, New York.
54 *Effect of Digitalis on Normal Human Electrocardiogram, With Especial Reference to A-V Conduction. P. D. White and R. R. Sattler, Boston.
55 *Influence of Tethelin, and of Other Alcohol-Soluble Extractives From Anterior Lobe of Pituitary Body on Growth of Carcinomas in Rats. T. B. Robertson and T. C. Burnett, Berkeley, Calif.
56 *Intravenous Injection of Magnesium Sulphate for Anesthesia in Animals. J. Auer and S. J. Meltzer, New York.
57 *Experimental Study of Additive and Antagonistic Actions of Sodium Oxalate, and Salts of Magnesium and Calcium in Rabbit. F. L. Gates and S. J. Meltzer, New York.
58 Distribution of Trypan-Red to Tissues and Vessels of Eye as Influenced by Congestion and Early Inflammation. P. A. Lewis, Philadelphia.
59 Appearance of Pressor Substance in Fetal Hypophysis. D. Lewis, Chicago.
60 *Chemical vs. Serum Treatment of Epidemic Meningitis. S. Flexner and H. L. Amoss, New York.

51. **Bactericidal Action in Substituted Benzylhexamethylenetetraminium Salts.**—By the addition of substituted benzyl halids to hexamethylentetramin, a series of quaternary salts of this base was obtained. These salts represent a new group of organic bactericides. The results obtained in the tests with these substances on *B. typhosus* demonstrated the existence of direct relationships between chemical constitution and bactericidal action within the series. Several substances in which two hexamethylenetetraminium side-chains occurred were found to be the most active of the substances of this series when tested against *B. typhosus*. Comparative tests with other bacterial types demonstrated that these compounds possessed a marked degree of specificity for *B. typhosus*.

53. **Protection of Pathogenic Micro-Organisms.**—The experiments reported on by Rous and Jones show that living phagocytes are able to protect ingested organisms from the action of destructive substances in the surrounding fluid, and even from a strong homologous antiserum. There was evidence that the protection by phagocytes is largely if not entirely conditioned on their being alive. These facts the authors would take into consideration in the study of diseases caused by infectious agents capable of living within tissue cells.

54. **Effect of Digitalis on Human Electrocardiogram.**—White and Sattler gave digitalis by the mouth to five normal young male adults in amounts ranging from 2.0 to 3.0 gm. of standardized leaves in the course of seven to ten days. The As-Vs interval was prolonged in four to five subjects, the greatest prolongation occurring in the case of the subject who received the most digitalis and none at all in one who received only 2.0 gm. There was no prolongation to so great an interval of 0.2 second until 2.7 gm. had been taken. The effects of the digitalis on conduction time began five to six days after the drug had been started and after 1.5 to 1.8 gm. had been taken. The effects persisted for one to two weeks after the drug had been stopped. Atropin removed completely the effect of digitalis on A-V condition. The slowing heart rate after exercise was accompanied by an enhancement of the defect in conduction. The change in conduction through digitalis was therefore almost entirely, if not entirely, due to increase of vagal tone and irritability. Digitalis did not affect to an appreciable extent the Q-end of S and the Q-end of T intervals. Exercise and atropin both shortened the ventricular complex Q-end of T while the subject was under digitalis. The amplitude of the T wave, especially in Lead II, was changed within forty-eight hours after digitalis had been started, a decrease then beginning which became greater as the drug was continued and which persisted until ten to nineteen days after the digitalis had been stopped. The change in the T. deflection preceded by several days the change in conduction time. The T wave, therefore, in the normal subject as well as in the patient gives us the earliest indication of digitalis action. The amplitudes of P, Q, R and S were not materially influenced by the amounts of digitalis given. The pulse rate in two subjects became lower than usual at night as the result of the digitalis; otherwise there was no evidence of vagal action on the sino-auricular node. Blood pressure was uninfluenced by the digitalis. Mild subjective sensations occurred in all the subjects during the administration of the drug. A curious, hitherto undescribed, digitalis arrhythmia consisting of blocked auricular premature beats occurred in one subject after 3.0 gm. of digitalis had been taken.

55. **Influence of Tethelin on Growth of Carcinomas.**—The experimental work done by Robertson and Burnett showed that the hypodermic administration of tethelin increases markedly the rate of growth of the primary tumor and the tendency to form metastases in rats inoculated with carcinoma, in this, as in other respects, reproducing the action of the whole anterior lobe of the pituitary body. Other alcohol-soluble extractives of the anterior lobe of the pituitary body, with the exception of the lecithin fraction, exerted no appreciable effect on the growth of carcinomas in rats. The lecithin fraction, as in previously reported experiments in which lecithin obtained from eggs was obtained, causes evident retardation of the growth of carcinomas in rats.

56. **Injection of Magnesium Sulphate for Anesthesia in Animals.**—The results of their experiments Auer and Meltzer believe justify the following general conclusions: By the intravenous injection of M/4 magnesium sulphate into dogs at a certain rate, a stage can be reached where the abdominal walls are completely relaxed and when section of the abdomen and stimulation of sensitive parts of the parietal peritoneum do not produce pain or elicit any reaction of the animal. At the same time spontaneous respiration may still be maintained within normal limits and the lid reflex be fair or even normal. In this stage intratracheal intubation for artificial respiration can easily be accomplished. This stage may be attained in twelve to fourteen minutes when the rate of injection is about 3 c.c. per minute. When this stage is once attained the rate of injection should gradually be reduced, otherwise, sooner or later, spontaneous respiration will be abolished, and by a further maintenance of the rate of injection all the skeletal muscles may become paralyzed. When the injection of magnesium is continued for a longer period, the paralytic effects of the magnesium injection will set in, even when administered at a slow rate. The paralysis of the respiratory function is readily met by intrapharyngeal insufflation. The paralytic effect of the magnesium may be abolished fairly rapidly by an intravenous injection of about 10 c.c. of an M/8 calcium chlorid solution; or it may disappear slowly, after the infusion of the magnesium solution is discontinued for some time. The latter mode of disappearance may be favorably accelerated by an

intravenous infusion of 60 to 100 c.c. of an M/4 solution of sodium sulphate. The production of anesthesia by intravenous injection of magnesium sulphate should not be undertaken unless an apparatus for intrapharyngeal insufflation is at hand, because in exceptional cases the disappearance of spontaneous respiration may be one of the earliest consequences of the magnesium injection. The injection of calcium chlorid should not be employed in cases in which the subject shows cardiac insufficiency. In such instances, moreover, injections of magnesium should not be used for the purpose of anesthesia; at least not until greater experience has been acquired in the employment of this method.

57. **Sodium Oxalate, and Salts of Magnesium and Calcium in Rabbit.**—Gates and Meltzer claim that the experiments detailed by them firmly establish the following facts: Subcutaneous or intramuscular injections of sodium oxalate in subtoxic doses, when administered to an animal which received a subminimal dose of magnesium sulphate, produce profound anesthesia and paralysis of long duration, although the usual effects of sodium oxalate alone are of a stimulating character. The combined injections of subminimal doses of sodium oxalate and magnesium sulphate produce a strong reduction, or even, at times, a complete abolition of the conductivity of the motor nerve endings. An intravenous injection of calcium salts brings on a recovery from the profound and prolonged effects of the combined action of sodium oxalate and magnesium sulphate, which is as prompt as is observed in experiments in which effective doses of magnesium alone were given.

60. **Treatment of Epidemic Meningitis.**—Protargol and lysol have shown themselves not to be curative, but rather to be injurious in experimental meningococcic infection produced in guinea-pigs and monkeys by Flexner and Amoss. Far from exhibiting power to convert a fatal into a nonfatal issue, they have shown rather a reverse tendency. Even when, as in certain tests on monkeys, recovery occurred after employing protargol, the symptoms of the treated animals were intensified as compared with the untreated control animals. The manner of action of the chemicals is precisely the reverse of the antiserum. The latter acts leukotactically and brings into the infected serous cavities a far larger number of leukocytes than would otherwise appear there in the same period of time. Moreover, by preparing the meningococci for phagocytosis by supplying opsonin and by facilitating that process by agglutinating the diplococci, the serum greatly promotes the englobing of the micro-organisms. Finally, through the possession of antitoxic power it neutralizes whatever endotoxin may be liberated by the disintegrating diplococci. The antiserum is capable of overcoming part of the defects of the chemicals. Because of its leukotactic and phagocytic properties, the antiserum removes some of the damage which the chemicals produce on account of their antagonism to those essential phenomena. But combinations of the chemical and the antiserum have proved less effective in combating experimental meningococcic infection than the antiserum alone, from which the deduction may be made that whatever benefit may attach to effective direct bactericidal action by the chemicals, irrespective of the type of meningococcus causing the infection, is lost because of the dangers arising from their antiphagocytic effects and lack of detoxicating properties.

Journal of Infectious Diseases, Chicago

May, XVIII, No. 5, pp. 437-567

61 *Bacteria of Milk Freshly Drawn From Normal Udders. A. C. Evans, Washington, D. C.
62 *Etiology and Experimental Production of Herpes Zoster. E. C. Rosenow, Chicago, and S. Oftedal, Rochester, Minn.
63 Epidemiology of Pellagra in Nashville, Tennessee. J. W. Jobling and W. Petersen, Nashville, Tenn.

61. **Bacteria of Fresh Milk from Normal Udders.**—In 32, or 16.1 per cent. of the whole number of samples studied by Evans bacteria were not multiplying in numbers worth considering. Three types of bacteria were found commonly present in milk from all five dairies; they were streptococci, staphylococci, and bacilli. The ordinary milk-souring organism, *Streptococcus lacticus* (Kruse), was not found in any of the samples of milk. Long-chained streptococci which failed to give the reduction of litmus in milk cultures characteristic for *Streptococcus lacticus* were isolated from 29, or 15.1 per cent. of the whole number. The highest number found per cubic centimeter was 264,000. Micrococci were found in 113, or 58.8 per cent. of the whole number. The highest number found per cubic centimeter was 80,000.

62. **Experimental Production of Herpes Zoster.**—It would appear from the experimental and clinical studies made by Rosenow and Oftedal that herpes zoster is due to a streptococcus having elective affinity for the ganglia and the posterior roots. The possibility, however, that the disease in some instances may be due to other bacteria having a similar affinity is admitted. The streptococcus found by them resembles morphologically the diplococci found in the gasserian ganglia by Sunde. The occurrence of relatively slight lesions in ganglia without peripheral herpes, adjoining those showing marked lesions accompanied by herpes; and the finding in the probable atrium of infection of bacteria having affinity for the posterior roots and ganglia in a patient who continued to have pain after the lesion of the skin had healed, and not in those patients who were free from pain, suggests to the authors that the pain in post herpetic neuralgia and allied conditions is due to active but slight infection of the ganglia or posterior roots. The occurrence of herpes zoster in patients who have ulcer of the stomach or empyema according to Rosenow and Oftedal is probably not a reflex arc effect or infection of the ganglia by way of the nerve lymphatics, but is due to a hematogenous infection from a focus harboring streptococci that have an elective affinity for the structures involved. The occurrence in 8 per cent. of the animals used of ulcer of the stomach (proved to be due to local streptococcal infection in the mucous membrane following injection of these strains), is in line with this idea. The fact that visceral herpes with accompanying lesions of the vagus and sympathetic ganglia has been produced experimentally, supports the view held by clinical observers that visceral herpes occurs in man, and since it occurred chiefly in animals with severe, usually fatal, bilateral herpes, it affords experimental evidence in favor of the general impression that bilateral herpes is apt to end fatally.

The absence of streptococci in the clear blister fluid both in man and in animals when the organisms are present in the ganglia, and the presence of pain before peripheral lesions can be made out, suggests to the authors that the lesions in the ganglia are primary, and that the peripheral manifestations—herpes of the skin, tongue, lip, and the viscera—are secondary trophic effects. The occurrence of herpes in cases of pressure-paralysis of the spinal cord would seem to be in accord with this idea. The finding of the streptococcus in the turbid bloody blister-fluid in one man and in the severer peripheral lesions—skin, mucous membrane, tongue, and viscera—in experimental disease, the common occurrence of thrombosed blood vessels containing diplococci in both the peripheral and central lesions, and the absence of bacteria and demonstrable changes in the intervening nerve trunks, suggest strongly that while the primary milder lesions are trophic, making a "locus minoris resistantiae," the severer lesions, presenting as they do all the features of an infectious process, are the result of a superimposed hematogenous infection.

Journal of Laboratory and Clinical Medicine, St. Louis

April, I, No. 7, pp. 457-540

64 Hay Fever and Certain Other Local Anaphylactic Phenomena Referable to Respiratory Mucous Membranes. A. P. Hitchens and C. P. Brown, Glenolden, Pa.
65 Cerebellar Localization in Light of Recent Research. D. Black, Cleveland.
66 Regular Ectopic Rhythms. F. N. Wilson, Ann Arbor, Mich.
67 *Effect of Venous Stasis on Proteins of Human Blood Serum. A. H. Rowe, San Francisco.
68 *Protein Poison of Vaughan. R. W. Pryer, Detroit.
69 Treatment of Syphilis of Central Nervous System; Report of Cases. H. G. Pamment, Toledo.
70 *Heteroplastic Bone and Bone Marrow Formation Associated With Tuberculosis in Suprarenal. P. G. Woolley, Cincinnati.
71 Cardiac Formula for Relative Measurements of Valvular Orifices. R. A. Keilty, Philadelphia.

72 Compression Syndrome of Cerebrospinal Fluid; Report of Case. G. W. Brock, Atlanta, Ill.
73 *Present Status of Suprarenal Problem. R. G. Hoskins, Chicago.
74 *Results of Quantitative Albumin Determinations (Potassium Ferrocyanid) From Six Thousand Cases of Suspected Tuberculosis. M. L. Holm and E. R. Chambers, Lansing, Mich.
75 Fridericia's Method for Determination of Carbon Dioxid in Alveolar Air. J. J. R. Macleod, Cleveland.

67. **Effect of Venous Stasis on Proteins of Human Blood Serum.**—From the experimental data obtained by Rowe it appears that with a constant degree of venous stasis between the diastolic and systolic pressure, the total proteins increase with the duration of the stasis. When blood was taken from a vein, one minute after an ordinary tourniquet was applied to produce stasis, there was only 0.17 per cent. increase in the total protein and therefore too small an amount to split into albumin and globulin. The nonprotein elements underwent no change due to the stasis. In one case the globulin increase was greater than the albumin possibly due to the fact that the amount of globulin in the normal specimen was greater in relation to the albumin than in any other case of this series.

68. **Protein Poison of Vaughan.**—Pryer summarizes his paper as follows: All proteins contain a poisonous group. The protein poison is not b-imidazolethylamin, although the physiologic actions of the two are very similar. The protein poison is not a cholin derivative. Protein poison is not a simple chemical compound, but is a protein change product, acid in reaction, capable of forming salts and reacting much like the globulins in its behavior to neutral salts.

70. **Bone and Bone Marrow Formation in Tuberculous Suprarenal.**—In the case reported by Woolley the clinical diagnosis was spastic paraplegia. The anatomic diagnosis was, generalized miliary tuberculosis; tuberculous costochondritis; acute vegetative aortic endocarditis; tuberculous pyonephrosis; serous meningitis; pyorrhea alveolaris; varicose leg ulcer; mediastinal anthracosis; calcified mesenteric lymph glands; suprarenal tumor (?). This tumor was examined microscopically. Nothing remarkable was encountered in the cortex. Aside from a moderate lipoid change, and the presence of a few foci of so-called adenomas, there was nothing worthy of note, except at one or two places where a few spicules of bone were observed surrounding a cellular structure which resembled bone marrow. The medulla was evidently hyperplastic and at one point was the area which at postmortem had been described as possibly an adenoma. This turned out to be a mass of myeloid tissue almost completely surrounded by well formed bone, and containing within it at more than one point several miliary tubercles. Further search in other sections brought to light occasional tubercles in the cortex of the suprarenal, usually closely associated with the myeloid areas. Careful study of these anomalous foci gave definite evidence that they were actually and typically bone marrow surrounded by bone. There was a rich capillary network with endothelial lining between which were numbers of lymphocytes, leukocytes, myelocytes and giant cells, beside developmental forms of red blood cells. The bone was lined with periosteum and endosteum. Woolley believes that the fundamental lesion was a chronic tuberculous one, and that the bone and medulla formation was secondary to the irritation produced by the tubercle bacilli.

73. **Present Status of Suprarenal Problem.**—In concluding his paper, Hoskins says, that the fundamental question remains yet to be answered: Why does the removal of the suprarenal glands cause death? The trend of the evidence now available suggests that muscular metabolism is at fault. If that be true the solution, like that of many other of the most puzzling medical problems, rests in the hands of the biologic chemists.

74. **Potassium Ferrocyanid Test in Tuberculosis.**—Holm and Chambers have employed their potassium ferrocyanid test on over 6,000 sputums and it has proved entirely satisfactory. Out of the total sputums examined, tubercle bacilli were present in 1,412 (albumin present in 97 per cent.) and absent in 4,588 (albumin present in 60 per cent.). In addition they examined discharges from a considerable number of abscesses as well as secretions and exudates from various other parts of the body. Such abscesses have generally shown albumin ranging in volume from 10 to 35 per cent. Two cases of pulmonary edema gave albumin over 50 per cent. by volume. Twenty-eight cases of pneumonia in various stages gave albumin ranging from 10 to 50 per cent. by volume. Eleven cases of pleuritic effusion, diagnosed as tuberculosis gave albumin above 50 per cent. by volume. One case of tuberculosis of the bowel gave about 1 per cent. volume of albumin in the stool and seven cases of tuberculosis of the kidney showed 10 to 25 per cent. of albumin by volume in the urine.

Journal of Nervous and Mental Disease, Lancaster, Pa.

April, XLIII, No. 4, pp. 297-392

76 Two Cases (Brothers) of Progressive Lenticular Degeneration. A. S. Hamilton and H. W. Jones, Minneapolis.
77 *Study of Some Cases Diagnosed as Paresis in Pre-Wassermann Days. L. G. Lowry, Hathorne, Mass.
78 Unusual Case of Psychasthenia. G. E. Price, Philadelphia.
79 Dystonia Musculorum Deformans; Report of Case. T. Diller and G. J. Wright, Pittsburgh.
80 Peripheral Neuritis With Korsakow's Symptom Complex. (To be continued.) A. A. Wilson, Washington, D. C.

77. **Paresis in Pre-Wassermann Days.**—Data are presented by Lowrey dealing with 58 cases diagnosed with more or less certainty as paresis at Danvers between May, 1898, and May, 1912 (prior to the routine use of the Wassermann test). Of 13 cases in which paresis was not excluded, 1 is a paretic and 1 remains unclassed. Of the other 11, 4 are cases of dementia praecox, and the diagnoses were long ago established. Of 17 cases in which paresis was the probable diagnosis, not one is a paretic. Ten are cases of dementia praecox. Of 28 cases in which paresis was certain, 8 are paretic and 2 more are probably so. Fourteen cases can definitely be classed elsewhere and 7 are cases of dementia praecox. The other four cases are not paretic, but cannot be classed. The serologic investigation of cases in which paresis is suspected is an absolute requisite for establishing a correct diagnosis. Had the Wassermann and spinal fluid tests been known at the time these patients were presented for diagnosis, paresis might have been immediately excluded or confirmed. Clinical observation over a sufficient length of time will correct the diagnosis in the majority of cases, but this method has very obvious disadvantages. Lowrey points out that his study presents a basis for the conclusion that dementia praecox is often extremely hard to differentiate from paresis. A case of dementia praecox may present unequal pupils, exaggerated knee jerks, etc., and it is here that laboratory tests are of great aid.

Journal-Lancet, Minneapolis

April 15, XXXVI, No. 8, pp. 215-246

81 Mouth as Factor in Pathogenesis of Heart, Kidney and Joint Inflammations. T. B. Hartzell, Minneapolis.
82 Madelung's Deformity; Report of Case. G. Earl, St. Paul.
83 Treatment of Intractable Pruritus Ani by Local Anesthetic Methods. W. E. Ground, Superior, Wis.

Medical Record, New York

April 29, LXXXIX, No. 18, pp. 765-896

84 Periostitis and Osteitis. C. L. Dana, New York.
85 Autosensitized Vaccines. M. G. Wohl, Omaha.
86 Transportation of Wounded on Austro-Russian Front. E. K. Tullidge, Middletown, Conn.
87 Postoperative Treatment of Peptic Ulcer and Cholecystitis. J. R. Verbrycke, Jr., Washington, D. C.
88 Some Clinical Phases of Vasomotor Neuroses. W. E. Hartshorn, New Haven, Conn.
89 Shakespearean Conceptions of Some Medical Topics. J. A. Hagemann, Pittsburgh.
90 Treatment of Disease by Injections of Deep-Sea Water and Radium. F. E. Park, Stoneham, Mass.

New York Medical Journal

April 29, CIII, No. 18, pp. 817-864

91 Constitutional Conditions Caused by Oral Sepsis. J. Daland, Philadelphia.
92 Syphilis in Epilepsy. W. T. Shanahan, J. F. Munson and A. L. Shaw, Sonyea.
93 War of Metric System. A. L. Benedict, Buffalo.
94 Paralytic Feet. P. W. Roberts, New York.

95 Advantages of Pyelotomy in Renal Calculus. H. Moyrand, Grenoble, France.
96 Anorectal Fistula. A. A. Landsman, New York.
97 Urologic Diagnosis. J. Wittenberg, New York.
98 Teachers' Vitality as Indicated by Blood Ptosis Test. I. H. Goldberger, New York.
99 Medical Questions in Pennsylvania Compensation Act. H. A. Mackey, Philadelphia.

New York State Journal of Medicine

April, XVI, No. 4, pp. 167-222

100 Bladder Irritations and Inflammations in Women. H. N. Squire, Utica.
101 *Treatment of Hydrocephalus by Cisterna Sinus Drainage. I. S. Haynes, New York.
102 Treatment of Syphilis in Secondary Stage. S. Pollitzer, New York.
103 Heart in Syphilis. H. Brooks, New York.
104 Importance of Early and Proper Treatment in Diseases and Injuries of Eyes. J. S. Kirkendall, Ithaca.
105 *Eye Findings in One Hundred Patients With Pulmonary Tuberculosis. A. J. Bedell, Albany.
106 Pellagra. G. K. Collier, Sonyea.
107 Standardization of Conditions Affecting Posture. H. L. Taylor, New York.
108 *Case of Primary Melanotic Sarcoma of Lung Presenting Difficulties in Differentiating From Tuberculosis. O. F. Kunkel, Bells Camp, Pa., and E. Torrey, Olean.
109 Cases of Subacromial Bursitis and Concretions. W. W. Plummer, Buffalo.
110 *Results of Schick Test at Rochester Orphan Asylum. S. S. Bullen, Rochester.
111 Case of Brain Tumor (Glioma) in an Infant. G. A. Marion, Rochester.

101. **Treatment of Hydrocephalus by Cisterna Sinus Drainage.**—Haynes has operated on eight patients by this method. Termination: Died on table from shock 1. One hour after operation, shock, 1. On the third day, 1. On the fifth day, bronchopneumonia, 1. Head showed decided improvement. On the sixth day, 1. Total, 5. Discharged from hospital.—One lived eighteen months afterward with apparent arrest of hydrocephalus, died finally of "summer complaint." Another died one month after operation. Head much improved, attack of gastro-intestinal disturbance with apparent recovery. Died suddenly when in apparent good condition. A third was hopeless at the end of a month, drainage had ceased and the disease returned. A fourth was much improved, but died one or two months later in July or August with fever and diarrhea. Head had not increased in size. The fifth discharged in "fine condition." Could not be traced. The sixth, three months later, "very much improved physically and mentally." The seventh was discharged improved. At end of two months condition began to return. Readmitted and operated second time. Slight if any improvement.

105. **Eye Findings in Pulmonary Tuberculosis.**—Seventeen females and eighty-three males were examined by Bedell. The results showed: hypermetropic eyes, 54; myopic, 3; myopic astigmatism, 12; mixed astigmatism, 7; hypermetropic astigmatism, 26; compound hypermetropic astigmatism, 39; emmetropic, 4. The pupils were equal in sixty-nine and unequal in thirty-one.

108. **Melanotic Sarcoma of Lung.**—For eight months the general picture of this case was identical with that of many cases of tuberculosis. During this time the authors noticed that the patient's general condition appeared to improve to about the same degree under sanatorium treatment as would a case of tuberculosis. The diagnosis of malignancy could not be made until the patient developed an effusion. The true type of malignant tumor could only be determined at necropsy.

110. **Results of Schick Test.**—One hundred and thirty-two normal, healthy children were tested by Bullen in May, 1914, and the test was repeated on 100 of them in April, 1915. On both occasions, practically 55 per cent. were found to have sufficient natural antitoxin in their tissues to neutralize the toxin injected, that is, at least $\frac{1}{50}$ unit per c.c. of serum, sufficient to protect against diphtheria. Eighteen children who gave positive reactions in May, 1914, showed no reactions in April, 1915. Fifteen children who gave no reactions when first tested, showed more or less strongly marked reactions at the second test.

Northwest Medicine, Seattle

April, XV, No. 4, pp. 109-144

112 Fracture Problem. C. F. Eikenbary, Spokane.
113 Plea for Conservative Treatment of Fractures. H. E. Allen, Seattle.
114 Fracture Records, National Effort Toward Standardization. T. W. Huntington, San Francisco.
115 Prenatal Care. A. N. Creadick, Portland, Ore.
116 Twilight Sleep and Conversational Anesthesia. T. M. Burns, Denver.
117 Nerve Blocking in Labor. R. W. King, Salt Lake City.
118 War Surgery and Treatment. E. V. Morrow, Belgium.
119 Neosalvarsan Fatality. W. R. Jones and K. J. Holtz, Seattle.

Ohio State Medical Journal, Columbus

April, XII, No. 4, pp. 233-304

120 Clinicopathologic Study of Poisoning by Bichlorid of Mercury. S. A. Hatfield, Columbus.
121 Pathology, Diagnosis and Treatment of Tuberculosis of Kidney. C. A. Coleman, Dayton.
122 Medicine and Public. J. W. Clemmer, Columbus.
123 Food Poisoning. H. D. Jackson, Circleville.
124 Negro Health Problem in Small Cities. J. R. McDowell, Springfield.
125 Indications for Removal of Eye. J. R. Mossgrove, Steubenville.
126 Local Anesthetics in Nose, Throat and Larynx Operations. M. Metzenbaum, Cleveland.
127 Measles in Ohio; Annual Mortality, Geographic and Seasonal Distribution; Etiology, Transmission and Prevention. F. G. Boudreau, Columbus.
128 Suggestions to Physicians for More General Use of Diagnostic Laboratories of State Health Department. L. H. Van Buskirk, Columbus.

Southern Medical Journal, Birmingham

April, IX, No. 4, pp. 287-382

129 *Allen (Fasting) Treatment of Diabetes. I. I. Lemann, New Orleans.
130 Weaning. J. R. Snyder, Birmingham.
131 Training Babies. L. W. Elias, Asheville, N. C.
132 Morphinism and Kidney Disease. J. W. Stevens, Nashville, Tenn.
133 Autotherapy. J. C. Parham, Charleston, S. C.
134 Conservation of Health. J. W. Duke, Oklahoma City.
135 Malaria and Pseudomalaria. A. A. Herold, Shreveport, La.
136 Treatment of Malaria Relative to Its Eradication. T. E. Wright, Monroe, La.
137 Two Years Public Health Campaign in Rural County. C. A. Grote, Jasper.
138 History of Pellagra — Certain Salient Points. C. H. Lavinder, Ellis Island, N. Y.
139 Pellagra. J. F. Yarbrough, Columbia.
140 *Control of Persistent Uterine Bleeding Complicating Menopause Fibromyomata and Carcinoma of Uterus by Radium. C. J. Miller, New Orleans.
141 Neglected Appendicitis — Its High Mortality Diagnostic and Therapeutic Responsibility. F. G. DuBose, Selma.
142 Study of Intestinal Stasis. J. E. Johnson, Memphis, Tenn.
143 Protection and Closure of Incisions. R. M. Harbin, Rome, Ga.
144 After-Treatment of Abdominal Operations. L. Abramson, Shreveport, La.
145 Present Status of Gastrojejunostomy. A. L. Blesh, Oklahoma City.
146 Immediate and After-Treatment of Railway Injuries. W. W. Grant, Denver.
147 Operative Technic of Late Traumatic Cataract. E. R. Carpenter, El Paso, Tex.
148 Local Anesthesia in Conjunction With General Anesthesia in Mastoid Operations. T. W. Moore, Huntington, W. Va.
149 Lateral Sinus Thrombosis. J. H. Barnes, Enid, Okla.
150 Mastoiditis With Lateral Sinus Thrombosis and Cerebellar Abscess; Operation; Recovery. J. H. Foster, Houston, Tex.

129. Abstracted in THE JOURNAL, Dec. 11, 1915, p. 2118.
140. Abstracted in THE JOURNAL, Dec. 11, 1915, p. 2117.

Texas State Journal of Medicine, Fort Worth

April, XI, No. 12, pp. 623-678

151 Respiratory Symptoms in Heart Disease. J. S. Lankford, San Antonio.
152 Obligation of Medical Examiner. H. W. Cook, Minneapolis.
153 Life Insurance as Specialty. I. McNeil, El Paso.
154 Relation Between Life Insurance Agent and Local Medical Examiner. P. H. Scardino, Houston.
155 Cooperation of Medical Director and Local Examiner. B. L. Jenkins, Clarendon.
156 Relation of Medical Examiner to Medical Director. M. B. Grace, Seguin.
157 Use of Vaccines in Infectious Diseases of Ear, Nose and Throat. R. E. Moss, Antonio.
158 Hexamethylenamin in Diseases of Ear, Nose and Throat. C. B. Williams, Mineral Wells.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

April, XIII, No. 148, pp. 97-128

1 Vascular Disease in Young; Report of Cases. C. W. Chapman.
2 Common Speech Disorders of Childhood. J. Priestley.
3 Infiltration of Heart by Large Round-Celled Sarcoma. E. C. Williams.

British Medical Journal, London

April 8, I, No. 2884, pp. 509-540

4 *Penetrating Wounds of Abdomen. J. Fraser and H. T. Bates.
5 *Method of Treating General Peritonitis With Obstruction, and Its Application in Military Surgery. W. S. Handley.
6 Cases of Traumatic Gastric Ulcers. T. R. Elliott and H. Henry.

4. **Penetrating Wounds of Abdomen.**—Fraser and Bates are convinced that in the vast majority of cases of penetrating wounds of the abdomen operative measures offer the best chance of success. They qualify this statement by excluding from the category uncomplicated wounds of the liver and certain wounds of the kidney. When the wound affects the hollow viscera of the abdomen, it is only as the rarest exception that a spontaneous recovery occurs. When these cases arrive in the hospital they are almost universally in a state of intense collapse, therefore, it is advisable to wait for a period of from one to two hours, until the increased shock of the journey has subsided. To this rule one exception is made: those cases which show evidence of rapid and progressive hemorrhage; in such cases the risks attendant on immediate operation are taken. These cases are generally complicated by some degree of hemorrhage, and stimulant measures in all probability tend to increase the bleeding; therefore the authors limit the preoperative stimulation to getting the patient thoroughly warm and administering 1 c.c. pituitary extract. During the operation every precaution is taken to minimize the degree of shock; the operating room is thoroughly heated, the table is provided with a hot-water bed; the authors have found it advantageous to operate on these patients while they are in the Trendelenburg position. Immediately before the operation commences the administration of subcutaneous saline by a Lane's bag is begun, and it is continued throughout the operation; three to four pints of fluid are frequently given in this way. Henderson's closed ether anesthesia has given great satisfaction. The abdomen is opened by a large incision. If the abdominal cavity contains a large quantity of blood, sufficient of this is rapidly swabbed away with a long roll of dry gauze to clear the view. A systematic examination of the various viscera is now carried out. As to whether the abdominal cavity should be washed out, in early cases with extensive soiling of the peritoneal cavity they have done so; in later cases, and in those which showed evidences of peritonitis they have not done so. They have found it sufficient to establish drainage by a single Keith's tube, passing into the pouch of Douglas. In special instances such as have already been mentioned they have found it necessary to drain locally or in the flanks.

5. **Method of Treating General Peritonitis.**—This paper deals exclusively with cases in which the accepted modes of treatment have failed to avert or relieve paralytic obstruction of the bowels. The principle involved is stated generally in the following terms: In cases of peritonitis involving the lower part of the peritoneal cavity up to the level of the pelvic brim, when obstruction supervenes, it can be treated successfully by the improvisation of a shortened but complete alimentary canal above that level. In peritonitis limited to the pelvis, the intestinal paralysis affects exclusively the portions of gut contained in the pelvic basin, namely, the lower portion of the ileum, and the pelvic colon and upper portion of the rectum. In so-called general peritonitis, at the time intestinal obstruction supervenes, the line separating the inflamed and uninflamed districts of the peritoneum is roughly a horizontal line drawn through the umbilicus. Below this line lies paralyzed intestine, above it intestine which is still functionally active. Thus in clinical "general peritonitis" the conditions are not dissimilar in kind from those present in ileus duplex, but the level separating the inflamed district of the peritoneum from the upper uninflamed portion is situated higher up. The parts of the alimentary canal which are still unparalyzed, and therefore available for constructing the suggested emergency alimentary canal, are the stomach, the jejunum, and probably the transverse colon, which lies on the boundary line of the inflamed district. All the rest of the intestine, small and large, is paralyzed. Handley's scheme of treatment is as follows: (1) for the pelvic peritonitis and intestinal obstruction (ileus duplex) consequent thereon—ileocolostomy to the ascending colon with cecostomy; (2) for so-called "general peritonitis," that is, unlocalized peritonitis, extending roughly up to the level of the umbilicus, with intestinal obstruction (hypogastric ileus)—jejunocolostomy to the transverse colon, with cecostomy. In all cases pelvic drainage must be provided.

Glasgow Medical Journal

April, LXXXV, No. 4, pp. 241-312

7 Gas Gangrene in Present War. M. Weinberg.
8 Cases of Complications of Pregnancy. R. Jardine.
9 Pyuria, Its Causes and Diagnosis. D. Newman.

Indian Medical Gazette, Calcutta

March, LI, No. 3, pp. 81-120

10 *Pituitary Extract in Labor at Government Maternity Hospital, Madras. C. A. F. Hingston.
11 Tuberculosis in Indian Army in France. R. F. Hebbert.
12 Lucky Wound of Head. C. H. Reinhold.
13 Noguchi's Serum Test for Syphilis. W. R. Galwey and C. H. Marchant.
14 Medical and Surgical Notes at Miraj Hospital. W. J. Wanless and C. E. Vail.
15 Intestinal Parasites in Central Jail, Rajahmundry. R. W. Chester.
16 Vesicovaginal Fistula. H. Smith.
17 Beta Naphthol in Ankylostomiasis. O. R. Corteling.
18 Ectopic Gestation — Rupture; Operation; Recovery. S. Gaster.
19 Case of Impetigo Bullosa. K. P. Lahiri.

10. **Pituitary Extract in Labor.**—During the last two years over 1,000 doses of pituitary extract have been given at the Government Maternity Hospital to women in different stages of labor. Hingston has come to the conclusion that the earliest time to give pituitary extract is when the cervix is effaced, whatever size the external os may be. On account of the intense pain due to uterine contractions, pituitary extract should not be given alone, and when it has been injected chloroform inhalation or morphin injection should be administered at once. The record of these cases shows that there is no danger to the child or mother when pituitary extract is given. No death has occurred in cases in which pituitary extract and small doses of morphin (¼ grain) or pituitary extract and chloroform have been administered. No deaths have occurred after the injection of pituitary extract and large doses of morphin (1 grain), but in these cases some difficulty has been experienced in inducing natural breathing in the infant. No children have been lost in these cases. Hingston insists that scopolamin should not be given when pituitary extract is used, as the child may not survive and will certainly be born in a poisoned condition. Two infants were lost; although the heart beat strongly for more than an hour respiration could not be induced even with Sheil's fluid. Pituitary extract administered with small doses of morphin, ¼ grain, repeated once or twice, has been found to be a great success, but Hingston considers that the best method is to give pituitary extract injection in combination with chloroform inhalation.

Journal of Pathology and Bacteriology, Cambridge

January, XX, No. 3, pp. 213-365

20 *Serologic Investigation of Heterologous Immunity to Malignant Tumors of Mouse and Rat. M. Tsurumi.
21 Transplantable Sarcoma of Guinea-Pig. J. A. Murray.
22 Comparison of Various Strains of Bacillus Pseudotuberculosis Rodentium (Pfeiffer), With Special Reference to Certain Variation Phenomena. S. Kakehi.
23 Pathology of Cardiac Dropsy. C. Bolton.
24 Certain Anaerobes Isolated From Wounds. M. Robertson.
25 *Staining of Bacterial Capsules in Films and Sections. R. Muir.

20. **Malignant Tumors of Mouse and Rat.**—By immunizing rabbits against mouse tumors, Tsurumi was able to obtain antiserum hemolytic for mouse erythrocytes. This immune serum also contained specific agglutinins for the red blood corpuscles of the corresponding species and com-

plement fixing antibodies are present in the immune serum obtained by immunizing rabbits with mouse and rat tumors. The precipitin reaction with mouse-tumor and rat-tumor antiserum while quite definite was not very strong.

25. **Staining of Bacterial Capsules.**—With one preparation Muir demonstrated the gram-positive reaction and at the same time brings about a differential staining of the capsule. This addition to "Gram's method" can be applied both to film preparations (wet and dry) and to paraffin prepared sections. The original article should be consulted for the details of this method.

Lancet, London

April 8, I, No. 4832, pp. 759-808

26 *Use of Stock Vaccine in Infection by Bacillus Typhosus. T. H. Whittington.
27 *Agglutination Tests in Inoculated Persons, and Influence of Febrile Conditions on Inoculation Agglutinins. G. Dreyer, A. G. Gibson and E. W. A. Walker.
28 *New Apparatus for Isolation and Cultivation of Anaerobic Micro-Organisms. J. McIntosh and P. Fildes.
29 Gunshot Wounds of Spine; Their Surgical Aspect. D. Armour.
30 *Anesthesia for Enucleation of Tonsils. J. Blomfield.
31 Pain in Renal and Vesical Lesions. D. Newman.
32 Connection Between Soldier's Heart and Hyperthyroidism. F. A. Stoney.
33 Food Economics in Relation to War. H. Campbell.

26. **Stock Vaccine in Bacillus Typhosus Infection.**—The 230 cases studied by Whittington were absolutely proved to be typhoid, clinically and bacteriologically. Half of them were treated with vaccines and the other half were control cases. The vaccine used (with four exceptions) was a stock vaccine, made up in dilution of 250 millions to the c.c. The other 4 cases had a sensitized vaccine. The initial dose, the interval between the doses, and the rate of increase of the dose were all the subject of careful trial. The total mortality in the 230 cases (115 vaccinated, 115 selected controls) was 52 (22.6 per cent.), this being made up by 29 deaths in the vaccinated cases (25 per cent.), and 23 deaths in the unvaccinated (20 per cent.). The average length of the primary period of pyrexia (neglecting fatal cases) was twenty-seven and one-half days. The average date on which the temperature settled was the twenty-ninth day in the vaccinated cases and the twenty-sixth day in the controls. The total number of cases having a relapse was 22 (9.5 per cent.), and of these 12 occurred among the vaccinated and 10 among the unvaccinated. The total number of patients with complications or sequelae of some kind or another was 111, and of these 58 were among those who had vaccine and 53 among the unvaccinated. Thirty of the total number of cases had been inoculated once or twice during the nine months preceding their illness. *B. typhosus* was isolated from each. In these vaccine had no good effect on the mortality or on the incidence of complications. Good results were obtained where good results can be expected by ordinary methods of treatment alone. In summarizing, Whittington says: From all this it would appear (*a*) that it is in just those cases in which the physician so much requires help that vaccine is disappointing; (*b*) that vaccine neither shortens the fever nor reduces the number of complications in even that class of case which is likely to do well; and (*c*) that there is a decided suspicion that vaccine increases the incidence of hemorrhage. Therefore the use of a stock vaccine in typhoid cannot be recommended as a routine treatment.

27. **Agglutination Tests in Inoculated Persons.**—The conclusions arrived at by the authors are in disagreement with those of Tidy. On the basis of an extensive mass of evidence Dreyer, Gibson and Walker claim: 1. That the febrile condition associated with paratyphoid does not cause disappearance of typhoid agglutinins from the blood of persons inoculated against typhoid. 2. That "other febrile conditions" also, in so far as they have hitherto presented themselves, do not cause disappearance of typhoid agglutinins from the blood of inoculated persons. 3. That the statement that "a positive agglutination reaction to *B. typhosus* after the fifth day of pyrexia has the same value in an inoculated as in an uninoculated person" is entirely erroneous.

28. **Apparatus for Isolation of Anaerobic Micro-Organisms.**—The method used by McIntosh and Fildes consists in enclosing the culture medium in an airtight vessel which has suspended in it a piece of asbestos wool impregnated with palladium black. The vessel is then attached to a hydrogen generator and hydrogen is allowed to pass in, when it will be occluded by the palladium and combined with any oxygen present. A negative pressure thus develops inside the vessel and hydrogen will pass in until no oxygen remains. The apparatus is then detached from the generator, but the action will still continue and any traces of oxygen which diffuse from the medium itself will be rapidly removed. Thus a more or less complete vacuum toward oxygen is obtained.

30. **Anesthesia for Enucleation of Tonsils.**—The best method, both for children and adults, Blomfield says, consists in giving a preliminary dose of atropin, gradually inducing a very deep degree of narcosis by a mixture of chloroform and ether, supplemented in some cases by a few minutes of open ether, and in some adults by a very few minutes of ether from a Clover's inhaler. There should be no congestion whatever by the time the operation begins, and the atropin prevents any undue mucus secretion. The anesthesia thus obtained generally suffices for the entire operation. When it does not, chloroform is used from a Junker's inhaler or the open mask is reapplied. The same extreme degree of narcosis necessary during dissection need not be kept up while the bleeding is being stopped, in the case of operators who prefer to see deliberately to the stopping of all hemorrhage after each tonsil is removed. So long as there is no return to consciousness it is far better that the absolute absence of reflexes kept up during removal of the tonsil should lapse, while the hemorrhage is receiving attention, to a condition in which the coughing reflex and the faucial reflex are present.

Archives des Maladies du Cœur, Paris

April, IX, No. 4, pp. 141-188

34 *Influence of Chronic Lung Disease on the Heart Valves. (Syndrome tricuspidien terminal dans les lésions chroniques du poumon.) R. Lutembacher.

34. **The Heart Valves with Chronic Lung Disease.**—Lutembacher calls attention to the tricuspid syndrome liable to develop in the course of chronic disease of the lung and which, in turn, imprints a special character on the pulmonary affection. Death is liable to occur from the valvular trouble rather than from the lung process. He describes five cases in which this terminal tricuspid syndrome occurred abruptly in the course of pulmonary tuberculosis of the sclerotic type, without cachexia, in persons of 40 and 50, free from previous history of heart trouble. In one case the tricuspid syndrome occurred with primary cancer of the lung compressing the left branch of the pulmonary artery, and in another the terminal tricuspid syndrome was secondary to primary sclerosis of the pulmonary artery. This functional incompetency of the tricuspid valve secondary to hypertension in the lesser circulation is encountered often in the tuberculous but is seldom recognized. The symptoms from it are often attributed directly to the lung process. Even if valvular trouble is suspected, the mitral valve is supposed to be the one at fault. But the regularity of the pulse in contrast with the congestion and the aspect of asystoly, and the "wooden-shoe" shape of the heart, instead of the transverse heart of mitral incompetency, differentiate tricuspid mischief. The hypertension in the lesser circulation acts on the right heart just as arterial hypertension affects the left heart.

Bulletin de l'Académie de Médecine, Paris

March 21, LXXV, No. 12, pp. 321-331

35 *Treatment of "Partitioned-Off" Meningitis. (Sur les méningites cérébrospinales cloisonnées. Interventions possibles. Injections intraventriculaires après ou sans trépanation.) A. Netter.

March 28, No. 13, pp. 333-372

36 *Early Closing of Wounds With Healing by Primary Intention: Carrel's Method. (Réunion secondaire des plaies de guerre par première intention dans les formations sanitaires de l'avant — Méthode Carrel.) Uffoltz.
37 The Birth Rate in France and Its Colonies. (Discussion de la communication sur la "Protection de l'Enfance indigène, etc.") A. Pinard.
38 *Venereal Diseases During the War at Military Hospitals in Paris. Gaucher.
39 Night Blindness in Soldiers: Hemeralopia. L. Weekers.

40 *Dispensary Treatment of Syphilis. (Du rôle des dispensaires de l'hôpital Broca dans la lutte contre la syphilis.) E. Jeanselme and L. Hudelo.
41 Tardy Tetanus Entailing Crippling Contracture. Phocas and Rabaud.

35. **Partitioned-Off Meningitis.**—Netter discusses the preferable technic for treatment, with illustrative cases, when the meningitic effusion is partitioned off from the general cerebrospinal fluid. He has applied intraventricular injections of antimeningitis serum in twelve cases, all in infants, and in two others injected the serum between the upper vertebrae. None of the infants recovered, but L. Fischer of New York, Lewy and Bouché have each reported a successful case of the intraventricular treatment. Netter trephined before injecting the serum into the ventricle in the case of a woman of 29 with meningitis and purpura. She had apparently recovered under intraspinal serotherapy alone, but had a third relapse and was given two intraventricular injections, supplemented by intravenous injections of the serum, as Penna of Buenos Aires advocates. The woman seemed relieved, but four hours later died with symptoms suggesting anaphylaxis. The disease was of a particularly rebellious type, of ninety-three days' duration.

36. **Abortive Treatment of Infection in Wounds.**—Uffoltz reports the application of Carrel's method in eighteen cases to demonstrate the fine results obtained with it even in the field environment. Twelve were shell wounds and six extensive lacerations from bullets, and yet all healed by primary intention without exception. He declares that this testifies to the efficacy of the Carrel technic in transforming infected wounds into a practically sterile condition, thus warding off septicemia and hastening healing so that it is complete in from one-half to two-thirds less time than under other conditions. One case is described as a vast shell wound of the left arm with extensive and deep loss of substance, destruction of the biceps, and the humerus denuded but not injured. Dakin's fluid was applied by the continuous instillation method, the man having reached the surgeon's hands in three hours after the injury. The ninth day the wound measured 11.5 cm. long by 5 cm. wide. The deeper tiers were then brought closer together by a U suture tied over a rubber tube. The eleventh day a second similar suture was made. The nineteenth day these sutures were removed. The wound was then up to the surface, measuring 10.3 by 2.9 cm. and the edges were brought closer together with strips of adhesive plaster. The twenty-fifth day the wound measured only 1.8 cm. and by the forty-second day it was merely linear, and the forty-eighth day had entirely healed.

In commenting on Uffoltz' communication, Pozzi read a letter from Carrel relating that Dakin's hypochlorite solution is now made with a modified formula. The chlorinated lime (200 gm.) is added to 5 liters of ordinary water in a 12 liter jar, thoroughly agitated two or three times, and set aside over night. Then 100 gm. of anhydrous sodium carbonate and 80 gm. of sodium bicarbonate are dissolved cold in 5 liters of ordinary water. This fluid is then poured all at one time into the maceration of the chlorinated lime, the whole vigorously agitated for a minute and then left quiet for the calcium carbonate to settle. At the end of half an hour the clear fluid is siphoned off and filtered through paper to obtain a perfectly limpid fluid, which is then ready for use. The solutions must not be heated. (The Carrel method was described in these columns, March 4, 1916, p. 775, and the Dakin solution was discussed February 5, p. 447.)

The solution is sensibly isotonic to the blood serum and should respond to the following test: Pour 200 c.c. of the solution into a glass and drop on its surface a few centigrams of phenolphthalein powder, then agitate by whirling the glass around as if to rinse its walls; the fluid should remain colorless. Any tinge of red indicates the presence of a notable quantity of alkali, free or incompletely carbonated on account of some fault in technic.

38-40. **The Venereal Disease Dispensary.**—Several speakers at this meeting of the Académie commented on the increase in the venereal diseases since the war began, and especially the increasing prevalence of syphilis. Recent cases of syphilis used to form a tenth of the cases in Gaucher's service, but they now form a sixth. Jeanselme and Hudelo expatiated on the great advantages of dispensaries for the venereal diseases. At the Broca hospital they had two dispensaries arranged and in 1915 there were 4,330 applicants; 21,192 injections of arsenical or mercurial preparations were made to 2,688 syphilitics. Those in an acutely contagious stage are kept in the hospital for a week if they so demand, or are given an intravenous injection of salvarsan. Only one in nine of the syphilitics required the hospital treatment. At the end of the week each was examined anew and as a rule could be then treated further as an outpatient. By this prompt treatment in the early stages infection of others is obviated, the therapeutic effect is more rational and effectual, and the patients are saved time and money. The drugs used are expensive, but as the hospital treatment is reduced so materially, the expense on the whole is far less than with the old methods of treating syphilis. They urge that dispensaries of this kind with laboratories for serologic, chemical, bacteriologic and cytologic tests should be organized at least in connection with all the hospitals in the cities and country, and at other points.

Paris Médical

April 1, VI, No. 14, pp. 321-360

42 *Advantages of Drainage by Threads. (Technique du drainage filiforme.) H. Chaput.
43 Critical Study of American Models of Artificial Legs After Amputation of the Thigh. (Les appareils américans pour amputation de cuisse; étude critique.) Ducroquet.
44 Streptococcus and Other Complications of Apparently Simple Wounds of the Chest Wall. A. Martin.
45 *Advantages of Closing Gaps in Skull After Wounds in War. (Les indications de la prothèse dans les pertes de substance de la voute cranienne par blessures de guerre.) Mariau.
46 Gravity of Suppuration in Wounded Knee. (Arthrites suppurées du genou par blessures de guerre.) R. Gouverneur.
47 Treatment of Fractures in the Field Ambulance. E. Vidal.
48 Hook to Aid in Extraction of Projectiles Embedded in Bone. L. Imbert.

April 8, No. 15, pp. 361-376

49 Trench Foot and Its Treatment. (Les froidures des tranchées.) F. Debat.
50 Continuous Elastic Traction to Overcome Muscular Contracture. (Traitement des cicatrices vicieuses et de certaines contractures musculaires par application d'appareils à traction élastique continue.) G. Lemerle.
51 Radiotherapy of Traumatic Peripheral Nervous Affections Consecutive to War Wounds. G. Bonnus.
52 *The Mirror as Aid in Obtaining Sputum for Examination. G. Rosenthal.

42. **Thread Drainage.**—Chaput lauds anew the superior advantages of threads or fine rubber cords or bougies, the rubber drains not over 4 or 6 mm. in diameter. He declares that this filiform drainage is perfect, wards off infection and keeps out air, while preventing any dead spaces and causing no oozing, bleeding or pain. Wounds and abscesses heal much faster with the thread drainage, and there is none of the backward valve action of ordinary drains, the thread serving as a normal valve.

45. **Gold Plate to Close Gap in Skull.**—Fabret, a dentist, has applied an extremely thin gold plate in sixteen cases of skull wounds, as Mariau describes, with full details in two cases. In both of these the right region of Rolando had been injured and jacksonian epilepsy persisted after trephining. The plate was made to fit exactly into the gap, with three projecting arms to hold it in place. There have been no further attacks in these patients, and in many other cases atrocious headaches, throbbing and epileptic crises have been permanently banished during the months to date.

52. **The Mirror Method of Obtaining Sputum.**—To avoid contaminating the sputum with germs in the mouth, Rosenthal has his patients cough a little as he is examining them with the mirror. This forces sputum on the mirror, and it can be drawn out without touching the tissues.

Presse Médicale, Paris

March 30, XXIV, No. 18, pp. 137-144

53 *Vein Transplanted to Patch Lacerated Urethra. (L'autoplastie veineuse de l'urètre traumatisé.) F. Legueu.
54 Dermatitis Around Wounds. (Dermatoses développées autour des plaies de guerre et trajets fistuleux.) A. Desaux.
55 Apparatus for Continuous Extension. (Appareils à extension continue.) J. Moula.

April 3, No. 19, pp. 145-152

56 *Muscular Reflexes of the Foot and Hand. (Les réflexes musculaires du pied et de la main — myo-diagnostic mécanique.) J. A. Sicard and P. Cantaloube.

57 Paratyphoid Congestion of the Lungs. (Congestions pulmonaires à bacilles paratyphiques.) J. Minet.

58 Transmission of Sounds Through Chest Wall in Diagnosis of Pneumothorax. (La pectoriloquie aphone comme moyen de diagnostic dans le pneumothorax au début.) V. Mandru and J. Balanesco.

April 6, No. 20, pp. 153-160

59 *Clinical Signs of Injury of the Sympathetic and Vascular Systems After Wounds of Arm or Leg. (Les signes cliniques des lésions de l'appareil sympathique et de l'appareil vasculaire dans les blessures des membres.) H. Meige and Mme. A. Bénisty.

60 Laws Regarding Grounds for Pensions. (Pensions de retraites et réformés No. 1.) A. Laquerrière.

53. **Urethra Made from Vein.**—Legueu cut a segment from the external saphenous vein at the triangle of Scarpa, slipped a No. 20 catheter inside the vein, and tied the vein, well stretched, to the catheter. Then he introduced the catheter into the urethra which had been torn in a bicycle accident. The autoplasty was a complete success, the new passage twenty months later being permeable for No. 44, 46 and 48 catheters. A preliminary perineal urethrostomy had been done and been given six months to heal.

56. **Muscle Reflexes.**—Sicard and Cantaloube remark that the capacity of the muscles for direct reflex action has never been thoroughly studied, and they offer here a contribution in this line. Their illustrations show a number of points on the foot and hand where tapping with a hammer induces characteristic reflex action in health, and its absence has direct diagnostic significance, as they describe in detail.

59. **Lesions of Sympathetic Nerves and Vessels in War Wounds.**—Meige and Bénisty have long insisted that injured vessels and their innervation are responsible for some of the disturbances usually credited to injury of the trunk nerves after gunshot or shell wounds of the limbs. This they believe to be particularly the case in the "causalgic" type described by Weir Mitchell, and the sympathetic nerves are the ones involved. The profusion of anastomoses in the sympathetic system explains the generalization of the suffering, the general discomfort and restlessness, as with enteralgia, uterus colic, etc. Injury of vessels not only interferes with the circulation but the sympathetic fibers which accompany the vessel suffer with it and this entails whole series of vasomotor, thermic, secretory and trophic reactions in addition to pain. Study of the clinical signs indicating involvement of the sympathetic system in wounds of the members is a new chapter in neurology. These signs they discuss and interpret in turn.

Revue de Chirurgie, Paris

January, XXXV, No. 1, pp. 1-175

61 Technic for Extraction of Projectiles With Aid of Hirtz' Compass. P. Duval.

62 Flap of Skin From a Finger in Repairing After Certain Wounds of the Hand. (Cheiroplastie dactylienne.) E. Quénu.

63 *Etiology and Treatment of Traumatic Talipes Equinus. (Pieds bots équins traumatiques.) P. Hardouin.

64 *Treatment of Abdominal Wounds in the Field Ambulance. A. Schwartz and P. Mocquot.

65 *The Omentum as Factor in Pericolitis. (Epiploon et péricolite.) P. Descomps.

66 Strangulation of Small Intestine Owing to Artificial Anus. (De l'étranglement de l'intestin grêle dans un prolapsus du gros intestin au niveau d'un anus contre nature.) M. Guibé. To be continued.

63. **Traumatic Talipes Equinus.**—Hardouin has seen hundreds of men with this deformity as a sequel to a wound of the leg. It may occur by one of ten different mechanisms, and prevention is extremely important. He is positive that it might have been prevented in 75 per cent. of the cases, and been materially mitigated in the others. These assertions are sustained by the experience that in certain hospitals this deformity occurs only exceptionally, while in others it is common. The importance of preventive physiotherapy is seldom realized by the untrained war nurses. Their knowledge of physiotherapy is generally comprised in the word "massage," and this they apply only in the form of simple friction. Early exercise of the ankle after a wound of the leg is imperative. Even the pressure of the bed clothes, when the men have to stay long in bed, may bring on the talipes, but the usual cause is that the men get up and use the leg too early, stepping on the toes to reduce the pain, and thus fastening the deformity on themselves. Various methods for correcting the established deformity are outlined.

64. **Abdominal Wounds.**—Schwartz and Mocquot summarize 60 cases in which they operated at once and saved 19 of the men. In 3 other cases the symptoms of peritoneal reaction compelled an exploratory laparotomy, but the projectile had not passed beyond the wall. The spontaneous recovery in such cases, and also when the projectile had entered through the chest, are often cited as evidence against the necessity for operating in all abdominal wounds. But in reality the bowel had not been injured. A wound of the bowel is evident when gas or feces escapes from the wound in the skin or the injured loop of intestine protrudes, or if blood issues from the anus, or the projectile is expelled in the stools, or if within a few hours signs of generalized peritonitis become apparent. Two men with abdominal wounds recovered without an operation, neither presenting serious symptoms at any time. These two cases confirm the occasional comparative harmlessness of wounds in the side regions of the abdomen; even when the large intestine is involved, spontaneous recovery is possible. But cases like these are extremely rare, and all the arguments are in favor of operative treatment of wounds penetrating the abdomen. Not the least convincing of these arguments is that if the laparotomy saves the man he is restored to practically complete health and not left a cripple. The care before and after the operation is discussed as of vital import.

65. **Omentum and Pericolitis.**—Descomps' study of the omentum in normal conditions and in the inflammatory processes observed in the course of chronic appendicitis and colitis with stasis confirms the preponderant part played by the omentum in the development of the phenomena of pericolitis. It is explained by embryologic data. He emphasizes the favorable therapeutic influence of resection of the omentum and separation of the adhesions around the colon in treatment of appendicitis, and also as the first measure in treatment of colitis and stasis. This is always an easy and benign intervention and frequently cures alone, or at least prepares the way for effectual medical treatment. The omentum aids in the production of peritonitis in various ways. As a rule the anatomic and clinical omentum reactions are chronic, but they may occur in acute form and these in turn lead to chronic colitis and stasis.

Revue Médicale de la Suisse Romande, Geneva

March, XXXVI, No. 3, pp. 133-208

67 Impossible to Testify to the Absence or Complete Cure of Gonorrhea in Women. (Peut-on certifier l'absence de la blennorrhagie chez la femme ou sa guérison absolue?) C. DuBois.

68 Saponin Hemolysis Test of Fragility of Red Blood Corpuscles. (De la résistance globulaire à la saponine.) R. Rochedieu.

69 Glycuronic Acid in Urine as Index of Liver Functioning. (La glycuronurie et ses variations. Un nouveau procédé d'exploration hépatique.) P. Gautier.

70 Amaurosis From Three Grams of Quinin in Twenty-Four Hours; Recovery. (Cas d'amaurose quinique.) G. Porte.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 25, XLVI, No. 13, pp. 385-416

71 Immobilizing Fractured Clavicle With Rod Passed Through Bend of Elbows Behind the Back. (Neue Methode zur Behandlung der Claviculafrakur.) Lüthi.

April 1, No. 14, pp. 417-448

72 Fatal Thrombosis of Sinus Cavernosus Secondary to Furuncle on the Nose. (Furunkel der Nase mit Exitus letalis infolge septischer Thrombose des Sinus cavernosus.) R. Wacker.

73 *Tuberculous Tumors in Cervical Spinal Cord. (Weiterer Beitrag zur Klinik und Chirurgie des intramedullären Konglomerattuberkels.) O. Veraguth and H. Brun. Commenced in No. 13.

74 *Fungus Infection of Vulva and Vagina. (Zur Moniliainfektion der weiblichen Genitalien — Kolpitis et Vulvitis mycotica.) O. von Herff.

April 8, No. 15, pp. 449-480

75 Chlorophyll in Therapeutics. (Chlorophyll und Chlorosan.) E. Bürgi.

76 Tonsillitis of Gastro-Intestinal Origin. (Zur Aetiologie der Angina der Kinder.) E. Dübeli.

73. **Tuberculous Tumors in Spinal Cord.**—The patient was a physician of 35. A mass of tubercles forming a round tumor was shelled out of the cervical spinal cord, with great

improvement at first. But a second and a third tumor of the same kind developed, the latter in a vital region. This case, and especially the necropsy findings, illustrate anew the remarkable tolerance of the spinal cord for slowly increasing compression, and the prospects for successful removal of a slowly growing "tubercle conglomerate." In locating an intramedullary tumor, the most precise palpation of the spinal cord may be necessary. We need not hesitate to open up the spinal cord when palpation reveals suspicious findings at any point. The region of the dorsal fissure and the dorsal columns is best adapted for this purpose.

74. **Mycosis of External Genitals.**—Herff has found a 1:1,000 or 1:5,000 solution of mercuric chlorid the most effectual means for treating mycotic colpitis and vulvitis. It is applied four times a day and soon conquers the mycosis. He has encountered several cases of this kind, the fungus in question being always the *Monilia albicans* or *candida*.

Monatsschrift für Kinderheilkunde, Berlin

XIII, No. 9, pp. 393-430

77 *The Schick Test for Immunity to Diphtheria. (Ueber die lokale Diphtheriebouillon-Reaktion beim Menschen.) G. Bessau and J. Schwenke.

78 *Experimental Keratomalacia From Unbalanced Diet. (Zur Aetiologie der Keratomalazie.) E. Freise, M. Goldschmidt and A. Frank.

No. 10, pp. 431-476

79 *Disturbances in Infants From Unbalanced Proportions of Elements of Food Otherwise Suitable in Composition and Quantity. (Ueber Ernährungsstörungen ex correlatione.) G. Bessau.

80 *Case of Pseudotetanus in Boy Under Two. A. Hirsch.

81 *Glands Are Not Normally Palpable in Infants. (Ueber die Palpation peripherer Drüsen und deren klinische Bedeutung bei Kindern der ersten zwei Lebensjahre.) C. Coerper.

77. **Diphtheria Bacilli Endotoxin as Element in the Reaction to the Schick Test for Immunity to Diphtheria.**—In the editorial discussion of this test in THE JOURNAL, April 10, 1915, p. 1246, a warning was given against atypical reactions to the test. Bessau and Schwenke here explain why the reaction is sometimes atypical, devoting fifteen pages to the tabulated results of the test applied repeatedly to twenty children. They used first the original Schick technic; then repeated with fivefold the dose of the bouillon culture, and again with the culture heated to boiling point. In half of the children the reaction to the intracutaneous injection of the bouillon culture, according to the Schick technic, was unmistakably a toxin process as it could be completely annulled by antitoxin. In six of the twenty children the reaction was only partially annulled by antitoxin, and in four others the antitoxin did not seem to have any annulling action on the toxin. There is thus a nonneutralizable element in the diphtheria bouillon, and this element is apparently not modified by heat. In all probability, this heat-resisting substance is a preformed toxin in the diphtheria bacilli.

Their study of the responses to the intracutaneous test thus demonstrates that, besides the true diphtheria toxin, a diphtheria endotoxin plays a part that cannot be ignored. The test was applied from six to thirteen times to each of the children. The responses indicate that the reaction cannot be regarded as a pure toxin reaction and, this being the case, the reaction cannot be regarded as an index of the antitoxin content of the blood, and hence of the immunity to diphtheria. If the child is peculiarly susceptible to the diphtheria endotoxin, it will respond with an energetic reaction to the test even although it may have abundance of antitoxin in its blood. It might be well to investigate whether control tests with boiled diphtheria bouillon cultures might not give more reliable conclusions. They add that the fact that so many children display such susceptibility to the endotoxin is in itself interesting. Most of the research on immunity to diphtheria has been done on guinea-pigs. It is a question whether the conclusions from this can be applied to human beings. The guinea-pig is extremely susceptible to true diphtheria toxin but scarcely at all to the endotoxins of the diphtheria bacilli. The matter is thus much more complicated for man, and it is possible that the question of immunity to diphtheria, which seemed to have been settled, will have to be taken up and studied anew.

78. **Keratomalacia a Deficiency Affection.**—White rats fed with Hopkins' experimental diet, casein, alcohol-extracted starch, sugar and lard heated to 140 C., developed softening of the eyeball, beginning with falling out of the eyelashes. The process closely resembled keratomalacia in man, but it could be arrested or prevented by adding raw milk to the diet. This keratomalacia in rats is thus analogous to the scorbutus which can be induced in guinea-pigs by an unbalanced diet and the similar experimental polyneuritis in fowls. Rats that had attained nearly their full growth were not affected in the same way as the young; their further growth was arrested, but the eyes were not affected. This restriction to the period of liveliest growth is a feature also of experimental scorbutus in guinea-pigs. Only 4 per cent. of the ration in natural milk was required to abort or cure the eye trouble. Desiccated milk, even up to 10 per cent. proved absolutely ineffectual. The ration otherwise was not changed. As the milk was given apart from the other food, stimulation of the appetite could not have been a factor in the change.

79. **Putrefaction Versus Fermentation Alimentary Disturbances in Infants.**—Bessau here discusses digestive disturbance due not to too much or too little food but to the correlation of the different elements of the diet. Infants are particularly sensitive to incorrect proportions of fat and carbohydrates in their diet; the proper ratio between these seems to have a special bearing on the natural immunity of the nursling. The recent tendency in infant feeding to bring the fat content up to approximate that of breast milk is based mainly on the observation of the lesser resistance to infections of infants brought up with little fat and much carbohydrates. He expatiates on the seriousness of the effects liable to be entailed by slight causes of this nature.

The key to the understanding of this fact lies in the modification of the bacterial processes in the intestines by slight proportional variations in the chemical composition of the bowel content. We know by experience that by promoting putrefaction in the bowel we can cure acute digestive disturbances, and induce them by promoting fermentation. With breast feeding, fermentation is restricted to the large intestine, but it is intensive there. No substitutes for breast milk have been found which share this property of keeping the fermentation processes limited to the large intestine. When they invade the small intestine and get the upper hand over the putrefaction processes, then we have trouble. The fermentation becomes pathologic the moment the regulating functions of the lining of the small intestine become impaired. Impairment of the bactericidal function, probably, is what entails the digestive disturbance, and pathologic permeability entails the intoxication.

When a change in the diet which induces fermentation in the bowel cures the digestive disturbances and intoxication, we must believe that the lack of fermentation or the preponderance of putrefaction was the cause of the trouble. We must recognize, therefore, nutritional disturbance from putrefaction as well as from fermentation. As Bessau says, *Ich habe es gewagt dem Gärnährschaden einen Faulnährschaden gegenüberzustellen.* Records of metabolism experiments are not complete unless they mention the type of the stools, whether fermentation or putrefaction predominates. Even the mere description of the aspect of the stools throws light on the bacterial processes at work. It is evident that the addition of some element to the food has an entirely different action according as it transforms the bacterial processes and hence modifies the metabolism, or has no such effect.

This idea of nutritional disturbance *ex correlatione* has brought into a new light the question of the absolute minimum of certain elements of the food in infant feeding. The carbohydrates, for instance, have the important task of holding in check the injurious putrefaction processes in the bowels; according to the composition of the carbohydrates given, the carbohydrate minimum fluctuates.

In conclusion he remarks that with albumin milk, on the one hand, and Keller's malt soup on the other hand, we are prepared to combat fermentation and putrefaction nutritional disturbances; their therapeutic efficacy can scarcely be overestimated. But what is still lacking is a generally applicable

method of feeding which can be relied on when breast feeding is impracticable. It must fulfil a large number of requirements, chief among them the requirement that it must keep down putrefaction in the intestines without eliciting pathologic fermentations. It must be the happy medium, as it were, between the two extremes, albumin milk and malt soup. Servile imitation of the chemical composition of breast milk has met with but little success so far. It actually seems as if the physiologic bacteriochemical relations were harder to reach in this way than possibly by some short cut disregarding the chemical composition of human milk.

80. **Pseudotetanus in Children.**—Hirsch reports another case of the affection to which Escherich gave this name as a clinical entity. He had compiled or encountered fifteen cases, and seven others have been published since. The afebrile course and recovery in from two to eight weeks are characteristic. In Hirsch's case, trismus was the first symptom to attract attention; usually it is the legs that are first affected. Inoculation of white mice with 1 c.c. of the serum from Hirsch's little patient gave negative results. He is inclined to regard the affection as an atypical form of true tetanus, rather than of tetany, as Escherich believed. In this and some of the other cases, features suggesting hysteria were noted during convalescence—evidently what Hamburger calls the *"psychogener Rest"* of the affection.

81. **Palpability of the Glands in Infants.**—Coerper's material for this article was accumulated before the war at the infant asylum at Barmen, but it has been written during his service as navy surgeon. He examined a thousand infants for palpable glands, the technic that according to Toby Cohn's method; it has proved as reliable for infants and children as for adults. Eleven various gland-systems are reviewed in detail, and the findings tabulated according to age, clinical condition, feeding, etc., and also according to age in months and weight. In 100 newly born infants, one gland could be palpated in one axilla in 95, and in over half of these, by the third day, some palpable gland was discovered elsewhere. The negative findings were in the 5 prematurely born infants. The number of palpable glands increases from birth onward, manifestly owing to injuries of various kinds, chilling, infection from the mother while nursing, etc. Infants with three or more palpable glands always showed signs of injury of some kind, usually obstetric trauma, while the children born without artificial aid or protracted labor had only the one palpable gland in one axilla, and this he ascribes to the physiologic mammary processes in the newly born. With the exception of this one axillary gland in the first three weeks of life, palpable glands in infants testify to damage of some kind; no other palpable glands are normal. The discovery of palpable glands elsewhere warns that something is or has been wrong, and the findings recorded show that no infants escape injury.

In the 200 healthy infants he found an average of 2.1 glands in those one month old, the average increasing to 4 by the end of the year. The averages in the breast fed were 2 at one month, increasing to 3 at six months. In those with mild digestive disturbances, the number was 4.2 at one month, up to 4.6 at six months. With severe digestive trouble, the averages were 6 at one month up to 9 at eleven months, and 7.5 at twelve months. With eczema, the average ranged from 4 to 6.2; with syphilis from 3.6 to 10; with rachitis, from 3.8 to 4.9. The 29 tuberculous infants averaged only 4 to 6; in only 2 of the tuberculous children was a supraclavicular gland palpable. The glands of the head-neck group formed nearly 50 per cent. of all the glands that could be palpated. The arm-chest group formed 30 per cent. and the inguinal 15 per cent. Certain pathologic conditions seem to be accompanied by unusually large numbers of palpable glands. Nutritional disturbances stand at the head of this list, the number of palpable glands larger, the severer the disturbance. Syphilis and sepsis are accompanied by numerous and tuberculosis with comparatively few palpable glands, but in none of these is the glandular enlargement specific. The other 16 palpable supraclavicular glands were in 8 children with severe nutritional disturbance, 5 with rachitis, 1 syphilitic and 2 apparently healthy infants.

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82 Local Treatment of External Tuberculosis. (Behandlung der äusseren Tuberkulose mit Lecutyl und künstlichem Sonnenlicht.) A. Strauss.
83 *Amyloid Degeneration Seems to Be Work of Bacillus of Friedländer Group. (Die amyloide Degeneration als der Ausdruck einer primären oder sekundären Infektion mit Kapselbazillen.) A. Frank.
84 *Influence of Yeast in Food on Elimination of Uric Acid. (Einfluss der Hefe, speziell Nährhefe, auf die Harnsäureausscheidung.) H. Salomon.
85 Yeast as Food. (Bedeutung der Nährhefe als Nahrungsmittel.) H. Wintz.
86 *Desiccated Organs for Abderhalden Test. (Trockenorgane für die Abderhaldensche Reaktion.) G. Seiffert.
87 Official Directions for Prophylaxis of Tuberculosis. (Offene Lungen- und Kehlkopftuberkulose. Amtsärztlicher Antrag.) M. Henkel.
88 Differentiation of Mercury and Salvarsan Exanthems. (Ueber die Verwechslung von Quecksilber- und Salvarsanexanthemen.) Wechselmann.
89 The Length of Roentgen Rays as Gage of Their Hardness. (Die Wellenlänge der Röntgenstrahlen als Härtemass.) A. Sommerfeld.
90 Treatment of Gunshot and Shell Fracture of Femur. (Zur Behandlung der Oberschenkelschussfraktur im Felde.) F. Danziger.
91 Extreme Movability of Hip Joint After Healing of Fractured Femur. (Ein eigenartiges Phänomen bei geheilter Schussfraktur des Oberschenkels.) H. Küttner.
92 Successful Suture After Six Hours of Bullet Holes in Heart; Death From Injury Elsewhere. (Zur Herzchirurgie.) C. Müller.
93 Case of Traumatic Exophthalmic Goiter. Schützinger.
94 Treatment of Aneurysm From Gunshot Wounds. (Ueber das durch Schussverletzung entstandene Aneurysma.) Hauber.
95 Standard for Litter Permitting Extension, Etc. (Das Krankentragebett mit Hochlagerung und Zug bei Oberschenkel-, Becken- und Wirbelbrüchen.) J. Fessler.
96 *Sodium Citrated Blood for Transfusion. (Zur Frage der Bluttransfusion im Kriege.) H. Fischer (New York).
97 *Gas Gangrene. (Kritisches über Gasgangrän.) E. Fraenkel.
98 Universal Angle Gage. (Ein Universalwinkelmesser.) Moeltgen.
99 Improved Technic for Support With Peroneus Paralysis. (Stütze für Peroneuslähmung.) J. Batsch.
100 *Leather Strap Support for Pelvis in Applying Plaster Cast. (Improvisation einer Beckenstütze.) K. Lossen.
101 Chilling the Metal Loosens Syringe Piston When it Sticks. (Einfaches Verfahren festsitzende Stempel in Rekordspritzen zu mobilisieren.) G. Weill.

83. **Bacillus Causing Amyloid Degeneration.**—The necropsy findings in a number of cases of amyloid degeneration convinced Frank that this was the work of some bacillus only slightly pathogenic and locating by preference in chronic suppurative processes induced by other bacteria. His assumption was confirmed by discovery of a bacillus of the capsulatus group in the blood and lungs of a man of 60, free from pathologic history except for repeated attacks of pneumonia. He succumbed in one and the spleen, liver, kidneys, heart and intestines were found in amyloid degeneration but no signs of suppuration or scars of such were detected. The bacillus was in pure culture and it reproduced typical and extensive amyloid degeneration in white mice, most prominent in the spleen. Frank's further research indicated that the experimental amyloid degeneration was a kind of coagulation necrosis, for which the toxins from the bacteria were evidently responsible. In the pneumonia case reported, this bacillus had evidently been alone responsible for the amyloid degeneration and the pneumonia had been its work, but, as a rule, it most commonly infests tuberculous cavities, etc. Blum found tuberculosis in 75 per cent. of 297 cadavers with amyloid degeneration, and some nontuberculous suppurative process in 10 per cent. In four cases of generalized amyloidosis, Frank found ulcerative pulmonary tuberculosis in three and tuberculous osteomyelitis in the fourth case and the capsulatus bacillus he describes was cultivated from the lesions in each. He isolated it also from the feces and urine in some of these cases. It is possible, he adds, that the bacillus in question is Friedländer's *Bacillus capsulatus;* its toxic products seem to have the property of inducing amyloid degeneration, just as the tubercle bacillus induces cheesy degeneration. The suppuration and necrosis are subordinate processes.

84. **Influence of Yeast on Elimination of Uric Acid.**—Salomon has been testing the yeast food—*Nährhefe*—put on

the market recently in Germany, and tabulates the metabolic findings in a girl of 17 and man of 30 on a purin-free diet with and without the yeast food. They show that the output of uric acid in the urine was increased as much by 10 gm. of the dried yeast as by 100 gm. meat. Persons inclined to gout or to urate concrements should be cautious in regard to ingestion of yeast, and Salomon even goes so far as to warn against the small but regular ingestion of yeast in ordinary bread. Baking powder may be preferable to yeast in baking biscuits, etc., for those with a tendency to gout and the uric acid diathesis in general.

86. **Pulverized Organs for the Abderhalden Reaction.**—Seiffert announces that tissues prepared with alcohol and ether and desiccated rapidly in a vacuum are proving apparently dependable and extremely convenient for the Abderhalden technic.

96. **Sodium Citrate as Aid in Transfusion of Blood.**—Fischer's experience has been as favorable with this method as that of others who have published their experiences with it. [He and Lewisohn ascribe the priority to a Belgian physician, Dr. Hustin, whose report on the subject appeared in the *Ann. et Bull. Soc. Roy. de Méd. et Nat.*, Brussels, 1914, No. 4, p. 104.]

97. **Gas Gangrene.**—Fraenkel says that gas gangrene affects the extremities exclusively, with the single exception of the uterus, in which an exactly analogous process may develop. The term gas gangrene should be reserved for the process in which the gas production is a coordinate symptom, accompanying the dying of the tissues. Gas production in already dead tissues is an entirely different affair.

100. **Improvised Support for the Pelvis.**—To apply a plaster cast to the pelvis, Lossen has one or two strong hooks fastened to the table so they stand 30 or 40 cm. high. A strong leather strap is passed around each thigh and the patient is placed with his back on one table and his feet on another. The straps are passed over the hooks and support the pelvis with perfect ease and with nothing to interfere with the cast as the straps are included in it. The ends can be cut off afterward or left for convenience in traction later. The pressure from the straps offers several advantages, especially the correction of the tendency to lordosis of the lumbar vertebrae.

Grèce Médicale, Athens

January, XVIII, No. 1-2, pp. 1-4.

102 Treatment of Tuberculous Cavity in Left Lung by Compressing With Paraffin Filling. (Traitement chirurgical de la tuberculose pulmonaire par décollement de la plèvre pariétale, et affaissement partiel du poumon, tamponné par la paraffine.) G. dré Kolias.

Pediatria, Naples

March, XXIV, No. 3, pp. 129-192

103 The Landau Reaction in Inherited Syphilis. (Reazione di Landau ed eredo-sifilide.) L. Chiaravalloti.

104 Ultraviolet Rays Check Proliferating Power of Protozoa. (L'azione antiriproduttiva dei raggi ultravioletti studiata sui protozoi leishmanie.) F. Porcelli-Titone.

105 Rachitis in Palermo. (Contributo statistico-clinico alla conoscenza della diffusione del rachitismo nella citta e circondario di Palermo.) S. Maggiore.

106 Jaundice From Congenital Obliteration of Bile Duct. (Caso d'ittero per obliterazione congenita delle vie biliari extraepatiche.) R. K. Marinucci.

Hygiea, Stockholm

LXXVIII, No. 5, pp. 289-352

107 Case of Pulmonary Syphilis: Ten Years' Course; Necropsy. (Ett fall av lungsyfilis.) A. Gullbring.

108 Prophylaxis of Infectious Diseases in France. (Frankrikes åtgäder mot de smittsamma sjukdomarna under kriget.) C. Kling.

Ugeskrift for Laeger, Copenhagen

March 23, LXXVIII, No. 12, pp. 419-458

109 *Hemoptysis and Exercise. (Blodspytning og Legemsbevægelser.) S. Bang. Commenced in No. 11.

110 *Determination of Hemoglobin Percentage. (Nogle Iagttagelser angaaende Hæmoglobinbestemmelser.) E. Meulengracht.

109. **Hemoptysis and Exercise.**—Bang declares that the traditional idea that after hemorrhage from the lungs one must keep absolutely still is based on theory and is not sustained by actual facts. He has made a special study of the subject on 2,000 men at a sanatorium, and found that the initial hemorrhage came on while the men were lying in bed or in a reclining chair in 69 per cent. of 354 cases; while dressing, sitting up in bed or just lying down in 15 per cent.; while walking or working in 6 per cent. and otherwise out of bed in 8 per cent. In only 2 of the total number were the patients climbing stairs and yet those 2,000 men must have climbed the stairs over a million times and taken at least 10,000 warm baths, and 25,000 douches while at the sanatorium. These figures show that exercise is not such an important factor in bringing on hemoptysis as generally assumed. No one part of the twenty-four hours seems to be more liable to it than others, and in his total material there were only 10 cases in which hemoptysis came on at stool, including 3 primary and 7 secondary hemorrhages. Straining to defecate had probably more to do with the hemorrhage than the exercise of going to the toilet. In only 23 of the total 354 was there any connection between the hemorrhage and climbing the stairs, and in 17 of these 23 the bleeding was merely a continuation of recently initiated hemoptysis, and in 14 it was very slight. In the other cases the men had gone up and down the stairs previously without hemoptysis, and this small proportion of 9 out of 354 cases may be ascribed to coincidence in some instances. The small number and the insignificance of the hemorrhages demonstrate, he is convinced, that even this comparatively severe exercise of climbing stairs is not so dangerous as generally assumed. Even when the bleeding point was still open, the blood did not spurt. He regards it as significant that the condition was constantly febrile in 50 cases, and that fever had developed just before the hemorrhage in 45, and just afterward in 31, while 11 of the patients had been severely chilled and 10 had been given a tuberculin injection just before. There were thus conditions predisposing to congestion or stasis in 45 per cent. of all the cases. He advocates being more liberal in allowing the patients to move after a hemoptysis. The effect on the mind and the appetite of allowing the patient to sit up in bed or at least to assume a half reclining attitude is a great gain. This in itself has been known to arrest hemorrhage from the lungs. On the other hand, the contraction of the abdominal muscles in rising up in bed to a sitting position presses on the vena cava as in straining at stool and is liable to start reflex action from the splanchnic nerve. This one movement, sitting up in bed, is probably what has given movements of any kind such a reputation for being dangerous. But this danger is entirely averted if the patient is placed from the start in the half seated posture. Expectoration, eating, vomiting, the toilet, etc., all proceed much more easily and smoothly when half sitting up, and the dread and discomfort are materially less. None of Bang's hemoptysis patients lost in weight, and he shortened the interruption in the general course of treatment to the minimum, letting them eat as otherwise. The main purpose, however, of this more liberal treatment is to ward off evil consequences from the extravasated blood. We have learned recently that tubercle bacilli occur in the blood more often than we had supposed, and the extravasated blood may sweep pus and mucus from the diseased into sound regions or they may be aspirated. In his experience, febrile consequences were far less common in the patients given this more liberal treatment. Morphin he thinks should be entirely discarded.

In short, he concludes, immobilizing treatment has many and grave dangers and inconveniences while a more liberal treatment has many direct advantages, and although its dangers, perhaps, cannot be absolutely denied, yet they loom up larger in theory than in actual experience.

110. **Hemoglobin Tests.**—Meulengracht describes some comparative tests with various hemoglobinometers which have demonstrated that the temperature affects the response with the Autenrieth and Sahli instruments. Low temperatures give lower and high, higher values. A standard interval is also necessary; ten minutes with the Autenrieth, and one minute with the Sahli. The metal in the Fleisch!-Miesher instrument has a direct catalytic action and the values are too low.